Safety Maintenance

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE • MARCH, 1961 • 50¢

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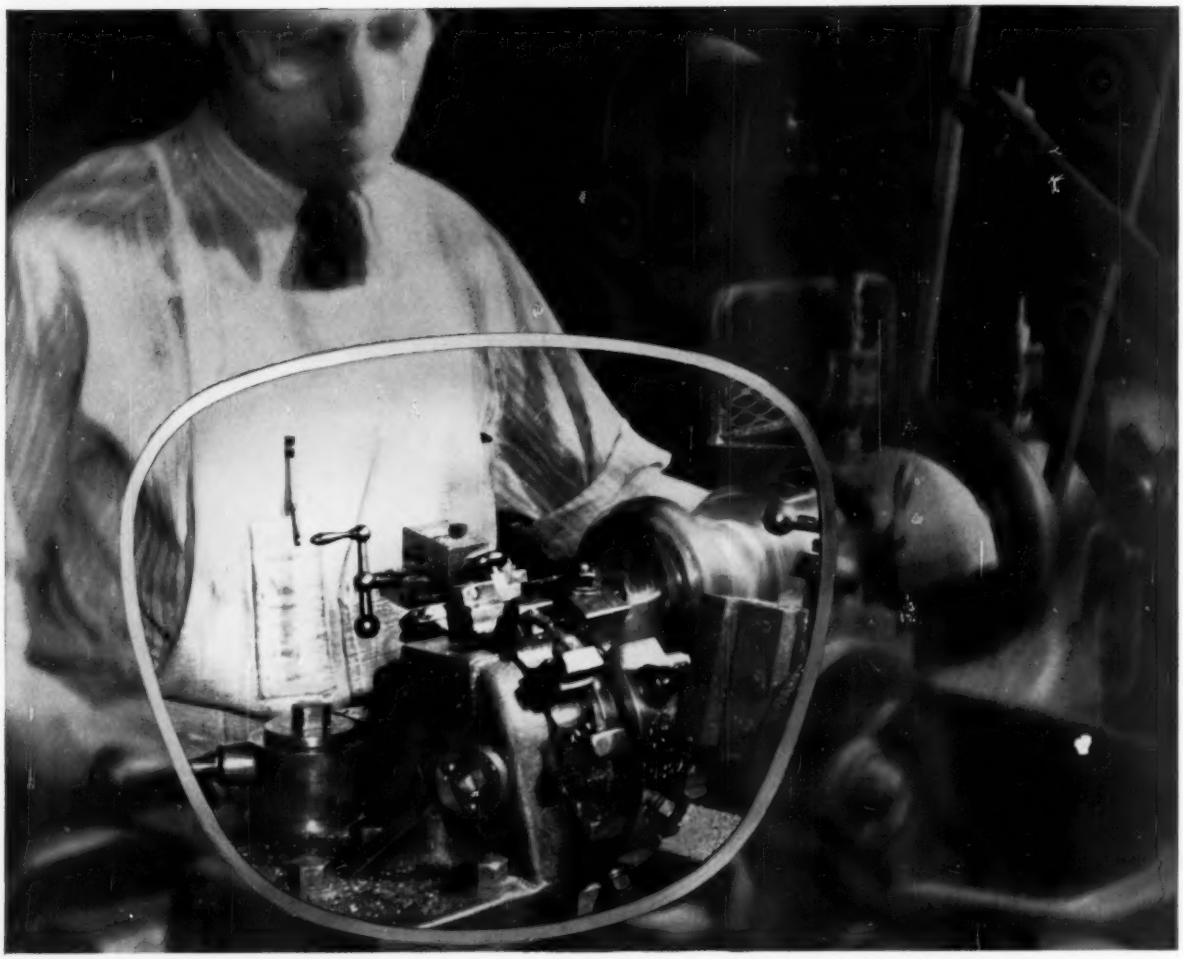

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protection + economy + worker acceptance

(For details, use Key # C-1 on card on page 1)

LOSS STOPPERS

The free bulletins and catalogs reviewed below are offered by the Reader Service Department of *SAFETY MAINTENANCE*. To obtain copies without cost or obligation, write in the key numbers on the Reader's Inquiry Card.

PLANT MAINTENANCE

Steel Floor Plate 200
Eastern Stainless Steel Corp. Colorful booklet describes the safety and economy features of stainless steel floor plate, and illustrates applications. Also includes safe uniform load tables, types available, and specifications. The informative catalog is intended for anyone connected with the installation and maintenance of industrial flooring.

Six Epoxy Compounds 201
Sika Chemical Corp. Technical bulletin, giving detailed information on six different epoxy compounds, explains importance of epoxy developments for repair, maintenance and new construction. Helpful chart summarizes for each compound such data as: uses, surface preparation, moist applications, pot life, application method, flammability, toxicity, safety precautions.

Vibration & Strain Analyzers .. 202
Kerfund Co., Inc. Illustrated short-form catalog describes broad range of instruments for measuring, recording and analyzing mechanical vibration and strain. Special attention given to transistorized vibration meter, electrodynamic transducers and also magnetic transducers that require no contact with the object.

Selecting Custodial Supervisors . 203
Puritan Chemical Co. Two Engineered Maintenance data sheets offer guidance in recruiting and, selecting supervisory personnel for custodial operations. Accompanying sheet outlines the duties of this type of supervisor.

PERSONAL PROTECTION

Non-Slip Boots & Shoes 204
B. F. Goodrich Industrial Footwear. Catalog describes a unique line of neoprene footwear that is resistant to oil and grease and has a non-skid sole for foot security on slippery floors. Items include regular and ankle-fit boots, work shoes (that may also have safety toes), and rubbers.

Paint Spray Respirator 205
American Optical Co. Folder describes a new respirator, approved by the Bureau of Mines, for protection against sprays and vapors of enamels, lacquers and lead-based paints. Also explains that the cartridges alone will convert this company's R-5000 series respirators for this new application.

Women's Safety Glasses 206
Willson Products. Bulletin illustrates and describes two new models of safety glasses styled especially for women workers. The frames are of combustion-resistant butyrate plastic with either all-charcoal color or two-tone ebony and crystal. Available with side shields.

Welding Helmets 207
Flood Safety Products Co. Well illustrated 4-page folder presents a complete line of fiberglass and vulcanized fiber welding helmets with wide vision, stationary and lift-front lens holders, and easily adjusted new type of headgear.

FIRE PROTECTION

Fire Equipment Catalog 208
Fyr-Fyter Co. New 1961 catalog of fire fighting equipment for interior fires. The up-dated material covers nine types of hand extinguishers, fire hose and extinguisher wall cabinets, hose racks, hose reels, angle valves, nozzles and many other accessory devices.

Spark-Resistant Tools 209
Ampco Metal, Inc. Bulletin shows and lists sizes of approved spark-resistant tools for use in areas containing flammable gases and vapors. Includes bung wrenches, wire brushes, chisels, hammers, dust pans, putty knives, scrapers, shovels, pliers, and all types of wrenches.

Metalworking Fire Protection ... 210
Cardox Div., Chemetron Corp. Quick fire extinguishment for the metalworking industry by means of low-pressure carbon dioxide systems is described in this booklet, which outlines three methods of application, lists typical "hot spots," and shows installations in areas such as pump rooms, quench and dip tanks, storage areas, etc.

MISCELLANEOUS

Fork Lift Warning Alarms 211
E. D. Bullard Co. This data sheet shows how a truck-motion alarm can prevent accidents by warning other employees in the vicinity. Entirely mechanical alarm works automatically when vehicle starts to move either forward or back, or can be adjusted for one-direction movement only.

Chart of Dangerous Chemical Mixtures 212
Eco Engineering Co. This safety chart, designed for wall display, warns chemical

(Continued on the next page)

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READER'S INQUIRY CARD

HOW TO GET FREE DATA! **(No Postage Required)**

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MARCH, 1961 **Please send me the following free data**

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Free Bulletins (Cont'd)

and maintenance workers against accidentally mixing certain chemicals that would produce explosions, fires or asphyxiations.

Coded Wire Markers 213
W. H. Brady Co. Illustrated bulletin describes a full line of self-adhering wire markers for permanent or temporary identification of small wires and electronic components. Includes application information and specifications.

Pressure-Sensitive Tapes in Industry 214
Minnesota Mining & Mfg. Co. Folder pictures typical applications of various types of pressure-sensitive tapes in industry, including maintenance, general masking, product protection, sealing and holding, and packaging. Also has data on tape dispensers and applicators.

FIRST AID & HYGIENE

Air Sampling Techniques 215
Gelman Instrument Co. Small manual outlines ways of collecting and measuring dusts and gases in air and how to measure the amount of contamination. Includes tips for chemical analysis, x-ray spectrographic analysis and diffraction analysis.

Resuscitation Equipment 216
Globe Industries, Inc. A versatile piece of resuscitation equipment is described and illustrated in this bulletin. Kit includes combination resuscitator-demand inhalator, aspirator jar, and mouth-to-mask resuscitator tube.

Synthetic-Fiber Filter 217
Union Carbide Development Co. A new type of panel filter for air purification is described in this illustrated brochure. The filter panels, made of Dynel fibers, can be used in any existing system for velocities up to 350 ft. per min. Charts show efficiency ratings, and diagrams give installation data.

First-Aid Room Supplies and Kits . 218
Otis Clapp & Son, Inc. New catalog of medical supplies offers several sizes of first-aid kits and numerous medical items such as antiseptics, surface anesthetics, headache and cold remedies, eye lotions, protective creams, etc.

What's Your Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the preceding page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
	PERSONAL PROTECTION
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti-Fogging Equipment
104	Sweat Band
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Electrical Gloves Tester
112	Anti-Slip Soles
113	Oil-Resistant Soles
114	Welding Helmets
115	Fire Fighting Suits
117	Safety Shoes
118	Safety Boots
119	Non-Slip Boots
	FIRST AID AND HYGIENE
120	Protective Skin Creams
122	Sanitary Drinking Facilities
124	Salt Tablets
126	Antiseptic Medication
127	Burn Medication
127A	Poison Ivy Immunizer
128	First Aid Kits & Supplies
129	Stretchers & Litters
129A	Stretcher Cases
130	Throat Medication
131	Eye Wash Fountains
131A	Emergency Showers
132	Portable Ventilators
133	Dust Collectors
135	Hearing Protectors
137	Noise Mufflers
138	Athlete's Foot Preventive
	FIRE PROTECTION
141	Safety Cans
142	Fire Alarms
146	Asbestos Textiles
148	Watchmen's Control Systems
149	Fire Blankets
	LIGHTING AND WARNING DEVICES
150	Alarms & Warning Lights
153	Fluorescent Lamp Guards
154	Emergency Lights
155	Truck Back-Up Alarms
	MAINTENANCE
161	Anti-Slip Waxes & Finishes
162	Floor Cleaning Compounds
163	Floor Cleaning Machines
164	Floor Resurfacing Compounds
167	Insulating Tape
168	Ultrasonic Flaw-Detector
169	Machine Motion Analyzer
	LADDERS & HANDLING
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171	Ladder Safety Devices
172	Scaffolds
173	Work Platforms
174	Emergency Ladder Rungs
175	Safety Hooks
176	Folding Truck Steps
177	Carboy Pumps
	GUARDS
178	Machine Guards
179	Power Press Feeders
180	Safety Tools
181	Vacuum Sheet Lifters
182	Valve Operators
184	Safety Lock-Outs
	EDUCATIONAL AIDS
191	Safety Signs
192	Safety Awards & Emblems
193	Employee Safety Guide
195	Changeable Letter Signs
197	Safety Training Films

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Safety Maintenance

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Volume 121, Number 3 **March, 1961**

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Cover picture by courtesy of Ohio Oil Co.: Hard-hatted stillman helper uses stair-type ladder with safety hand rail for access to top of condensate tank for catalytic cracking unit.

AMERICA'S PIONEER INDUSTRIAL SAFETY MAGAZINE

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it's SAFE to say

● DIAMONDS LAST FOREVER

One of the most continuing controversies in the safety movement is that surrounding the so-called incentive plan for outstanding records in accident and injury reduction. The incentive takes various forms of awards including certificates, plaques, trophies, cash or merchandise prizes.

On the one hand, there is the theory that the give-away approach to safety is a generally futile attempt to "buy" safe performance through the use of prizes and that such programs have no real lasting effect in creating a safe work force. One proponent of this belief fears that too much emphasis is placed on the achievement of a record, transitory at best. At the recent National Safety Congress, that sincere safety leader is quoted as saying that under an award incentive plan, not enough emphasis is directed to an effective safety program and that safety should be treated as a regular part of the job of which the workers can be proud.

Granted! But how often is this the case? Despite the fact that the speaker's opinion was publicized in a recent issue of SAFETY MAINTENANCE, this editor takes the position that awards for a safety job well done can serve an incalculably useful purpose as an incentive toward accident and injury prevention.

It is axiomatic that exponents of the performing arts give of their best under the stimulus of applause . . . it is safe to assume that some form of "applause" is equally provocative in those of us not associated with the theatre or concert hall.

That we are not alone in our firm conviction attesting to the value of prizes is manifested in an eloquent communication from R. G. D. Anderson, the progressive General Manager of the Industrial Accident Prevention Association in Toronto, Canada. Mr. Anderson reminds us that such giants of industry as the DuPont Company long ago recognized the applause-stimulant inherent in merchandise prizes as an individual plant in their organization progressed from one record of accident-free manhours to another.

SAFETY MAINTENANCE is in full agreement with Mr. Anderson in his contention that prizes for individual workers, in no sense, are an attempt to "buy" safe performance. They merely are a tangible form of reminder advertising such as that used by the most successful companies in existence. Those prizes, in the words of our eminent good neighbor of Canada, "simply keep the topic of safety more effectively in the minds of all employees than can be done by any usual amount of coaching."

Obviously, no incentive award plan devised by the most fertile brain in the safety movement is a cure-all; nor will it fit every single operation. Without good leadership, precept and the example of dedicated safety leaders plus heavy emphasis upon a day-to-day safety program, the best flash-in-the-sky campaign will fizzle out and die of malnutrition.

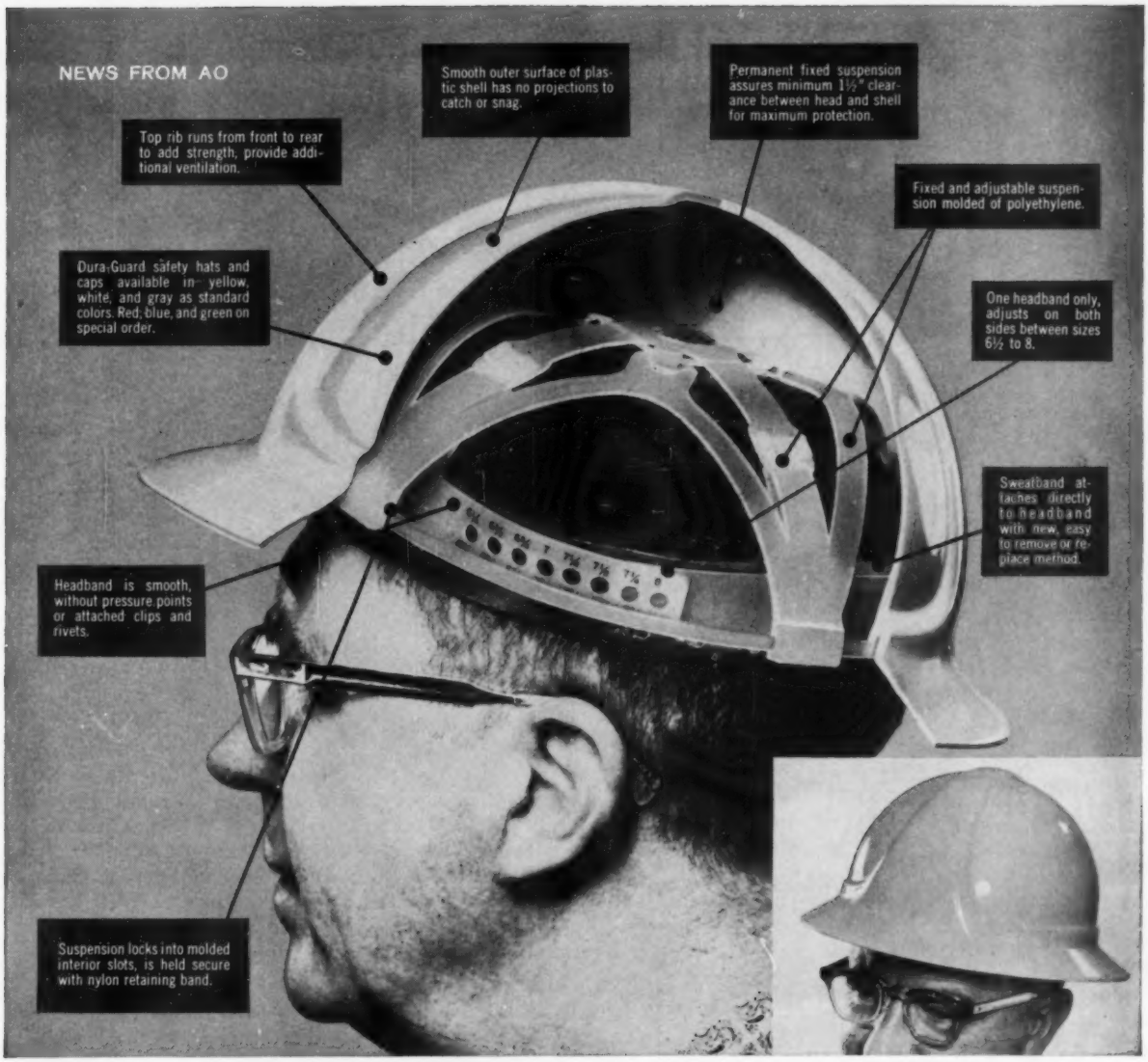
While it may be true that we cannot "buy" safe performance, it is certainly true that the advantages of safety must be "sold" and there are many different forms of packaging available to make the product attractive and desirable.

Whether it is in the field of accident prevention or any other endeavor, one does not do full justice to his job by scanning the horizon for a medal, a gold watch, a plaque or an increase in salary. Nevertheless, we have yet to hear of such an award serving to discourage others in putting forth the same effort.

The most lastingly successful safety program is that built and used with good effect after it has been tailor-made to fit conditions in a specific organization. Mr. Anderson makes a telling point when he states that we hire a salesman to do his job well but "we don't hesitate to offer special commissions, prizes and other incentives to encourage salesmen to concentrate on some lines we want them to move." Also, one new gimmick highly successful in the selling world is the incentive of travel awards for outstanding sales records.

A truly successful safety program has more facets than a diamond and it behooves us to explore and utilize every one in our common objective in reducing the tragic waste of accidents and injuries. An award incentive plant of itself and without proper guidance, perseverance and leadership can be meaningless, but when it is integrated in the over-all, never-ending crusade of "selling" the advantages of safe work performance, certainly it can lend more than a touch of much needed drama and glamor in what otherwise could well degenerate into a very dull and lifeless presentation.

If punishment for rule infractions can be held out as a possibility, then certainly somewhere along the line, a special reward for a job well done should enter the scene. To paraphrase the arch-flapper of the Twenties, "A kiss on the hand feels good but a diamond bracelet lasts forever."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Dura-Guard safety hats and caps available in yellow, white, and gray as standard colors. Red, blue, and green on special order.
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Headband is smooth, without pressure points or attached clips and rivets.
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Now: one safety hat to meet all requirements

Introducing the AO Dura-Guard . . . an *all-new* safety hat designed for *universal use*. Shells and suspensions are molded plastic, without holes or metal parts. New Dura-Guard hats and caps meet or exceed all standard specifications, and *every* Dura-Guard may be used wherever dielectric protection is required. Dielectric strength in accordance with E. E. I. specifications (April 1954) is available in individually tested hats and caps.

The injection molded shell is of uniform thickness throughout critical areas. Plastic suspension and headband are lightweight, comfortable, long-wearing, nonconductive, easy to clean. Headband adjusts on *both* sides to stay centered in shell, eliminate floating. Sweatband can easily be slipped out for cleaning *without removing any other part*, is made in telescoping halves for comfort and economy. Front half, which tends to soil or wear first, can be replaced at minimum cost.

For full information, contact your AO Safety Products Representative, or write for Folder S-1456.

Your Surest Protection . . . AO SURE-GUARD Products

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(For details, use Key # C-2 on card on page 1)

Philadelphia, Pa. *March 1–2*

Twenty-Seventh Annual Regional Safety-Fire Conference and Exhibit (Bellevue-Stratford Hotel). Harry H. Verdier, Executive Director, Safety Council, Chamber of Commerce of Greater Philadelphia, 121 S. Broad St., Philadelphia 7, Pa.

Atlanta, Ga. *March 5–7*

Twenty-Second Annual Southern Safety Conference and Exposition (Atlanta Biltmore Hotel). W. L. Groth, Executive Director, P. O. Box 8927, Richmond 25, Va.

Fort Wayne, Ind. *March 14–15*

1961 Northeastern Indiana Safety Conference and Exhibit. Ivan A. Martin, Manager, Safety Council, Chamber of Commerce Bldg., Ft. Wayne, Ind.

Houston, Texas *March 26–29*

Twenty-Second Annual Texas Safety Conference & Exhibit (Rice Hotel). J. O. Musick, General Manager, Texas Safety Association, Inc., 830 Littlefield Bldg., Austin, Tex.

Los Angeles, Calif. *March 28–30*

Eighth Annual Western Safety Conference & Exhibits (Ambassador Hotel). Joseph M. Kaplan, Manager, Greater Los Angeles Chapter—National Safety Council, 3388 W. 8th St., Los Angeles 5, Calif.

Boston, Mass. *April 3–4*

Fortieth Annual Massachusetts Safety Conference and Exhibit (Hotel Statler Hilton). Bert Harmon, Manager, Massachusetts Safety Council, 54 Devonshire St., Boston 9, Mass.

Toronto, Ont. *April 10–11*

44th Annual Meeting & Safety Show of the Industrial Accident Prevention Associations (Royal York Hotel). R. G. D. Anderson, General Manager, Industrial Accident Prevention Associations, 90 Harbour St., Toronto 1, Ont.

New York, N. Y. *April 10–14*

Thirty-First Annual Greater New York Safety Convention and Exposition (Statler Hilton Hotel). William J. Farley, Convention Director, Greater New York Safety Council, 60 E. 42nd St., New York 17, N. Y.

Lansing, Mich. *April 11–13*

Thirty-first Annual Michigan Safety Conference. Kenneth S. Hedges, Safety Director, General Motors Corp., Detroit, Mich.

Indianapolis, Ind. *April 26–27*

Fourteenth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Jack E. Gunnell, Director, Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

Syracuse, N. Y. *May 1–3*

Central New York Safety Conference & Exhibit (Hotel Syracuse). Greater Syracuse Safety Council of the Syracuse Chamber of Commerce, Syracuse, N. Y.

Columbus, Ohio *May 2–4*

Thirty-First Annual All-Ohio Safety Congress & Exhibit (Deshler Hilton Hotel and Neil House). Arthur W. Moon, Congress Chairman, Ohio Division of Safety & Hygiene, 400 S. Front St., Columbus 15, Ohio.

Bethlehem, Pa. *May 8–10*

Thirty-Fourth Annual Eastern Pennsylvania Safety Conference (Hotel Bethlehem). Harold A. Seward, Secretary-Treas., Lehigh Valley Safety Council, 602 E. 3rd St., Bethlehem, Pa.

Niagara Falls, N. Y. *May 9–11*

Twenty-First Western New York Safety Conference (Hotel Niagara). Clifford H. Seymour, Conference Executive Secretary, Western New York Safety Conference, P. O. Box 315, Niagara Falls, N. Y.

Durham, N. C. *May 10–12*

Thirty-First Annual North Carolina Statewide Industrial Safety Conference (Jack Tar Durham Hotel). H. S. Baucom, Director of Safety, North Carolina Industrial Commission, Raleigh, N. C.

Duluth, Minn. *May 25–26*

Thirty-Seventh Annual Conference of the Lake Superior Mines Safety Council (Hotel Duluth). Allen D. Look, Secretary, Lake Superior Mines Safety Council, 321 Federal Bldg., Duluth 2, Minn.

Hartford, Conn. *June 13–14*

Sixteenth Annual Safety Conference and Exhibit of The Connecticut Safety Society (Statler Hilton Hotel). Charles A. Wooding, Conference Chairman, c/o Wallingford Steel Co., Wallingford, Conn.

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ONE DOZEN 1/4 LB. TUBES OF #71 OR #51 FOR ONLY $10.80
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6T07

(For details, use Key # C-3 on card on page 1)

SIDE SHIELDS THAT FOLD FLAT

These side shields lay down to fit in your pocket — but stand right up to the job when you wear them!

Soft vinyl side shields fold *flat*, against the frame, then "remember" to open up for full side shield protection. Always handy, never left behind, these glasses go wherever you go.

And comfortable? The soft side shields conform to your face, above, below and beside the eyes. The temples telescope in and out as easily as the frame slips into your pocket. And the universal nose bridge fits 99 out of 100 noses. Light on your head or in your pocket — total weight, including glass or plastic lenses, is less than two ounces.

What about protection? These new Rapido FOLD FLAT side shield frames provide protection against all types of flying particles, dusts, sparks and harmful light rays. *Green* FOLD FLAT side shield frames and lenses provide stand-by protection in welding areas.

For protection, comfort and convenience, specify Watchemoket's Rapido FOLD FLAT side shield frames. Or write for Bulletin #607.

1. Adjustable RETRAX Temples — telescope in or out for perfect fit on any shape face.
2. Universal Nose Bridge — forms cradle for comfortable fit on any size or shape nose.
3. Spread-End Frame — makes lens changing quick, simple. Takes less than a minute.
4. Soft Vinyl Side Shields fold flat against frame for carrying ease in your pocket.

New Rapido FOLD FLAT Side Shield Frames

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232 West Exchange St., Providence 3, R. I. • Throughout Canada: Levitt-Safety Limited.

(For details, use Key # C-4 on card on page 1)

WATCHEMOKET eye SAVERS

PLANT MAINTENANCE & ENGINEERING CONFERENCE BEARS DOWN ON SAFETY

Exhibits at the 1961 Plant Maintenance & Engineering Show were of unprecedented variety and scope. The show, held in the International Amphitheatre, Chicago, Jan. 23 through 26, offered over 10,000 products designed to cut the mounting costs of the maintenance function. Now in its 12th year, the show and accompanying conference were produced by Clapp & Poliak, Inc. The exhibit area covered six acres and more than 375 companies participated.

The 1961 conference had many new features. The principal difference was the greater emphasis on the managerial aspects of maintenance to balance technical discussions. "Problem sessions," in which representatives of different industries gathered to discuss maintenance activities peculiar to their individual operations, were another highlight.

Problem sessions were scheduled for automotive, chemical, electronic equipment, textile, cement, metalworking and metal-fabricating, paper petroleum processing, food processing, research and development and steel plants.

Speakers at the various sessions of the conference were drawn from a broad cross-section of industry. Following are résumés of comments and discussions that may be of particular interest to safety engineers, safety directors and those charged with maintaining healthful and safe working environments.

Electrical Safety

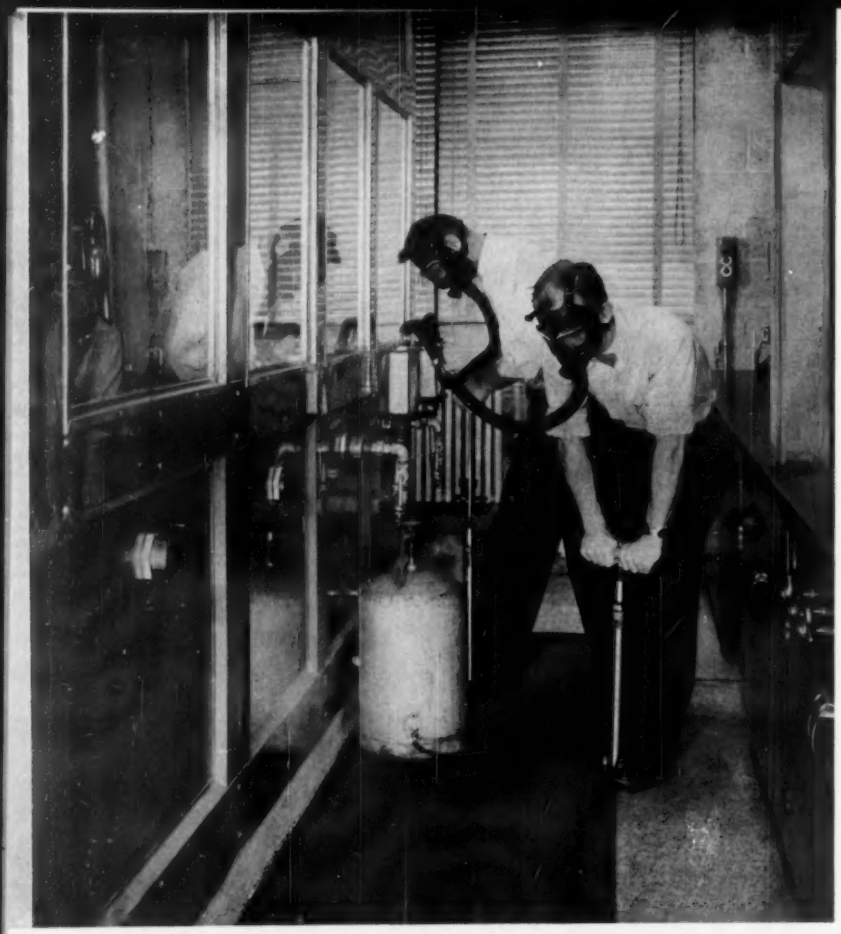
Leonard R. Hostetter, process and production engineer of the Assembly Division of General Motors Corp., Linden, N. J., listed "Safety of Operation" as the most important of the seven fundamentals to be followed in designing and maintaining electrical power systems in industry.

The system must meet all codes—federal, state, and local—if the danger to both plant and maintenance personnel is to be kept to a minimum. Equipment should be designed so that working on energized equipment is not necessary, because voltages above 100 can cause serious or fatal injury. The endangering of personnel and property by fire should be kept to a minimum by following code procedures of design and operation. The National Board of Fire Underwriters state that approximately 20 percent of all fires are due to electrical failures.

Network protectors, such as fuses and circuit breakers, should be provided with adequate overload and interrupting capacity so that, in the event of failure, the faulty elements are capable of being removed from the system. If faulty elements are not cleared from the system as rapidly as possible, severe property damage and the exposure of personnel to a greater hazard result. In the planning of an electrical power

(Continued on page 25)

Do's and



This employee is putting gas mask canisters through a routine safety test, using a 1000 cubic foot gas chamber as a reservoir of toxic atmosphere.

by **S. J. PEARCE,** Chief
Branch of Health Research
U. S. Bureau of Mines
Health and Safety Activity
Pittsburgh, Pa.

A person choosing respiratory protective equipment for a specific job or problem first should ask himself several questions:

Is there sufficient oxygen to support life?

What is the nature and concentration of the contaminant?

For how long will respiratory protection be needed?

What is the location of the contaminated area with respect to fresh air?

How active is the wearer expected to be?

With the answers to these questions, he can choose a suitable respiratory protective device—assuming he is familiar with the limitations and operating characteristics of the various types.

Gas masks are not designed to be used, nor can they be used safely, under *all* conditions. However, once the limitations of the gas mask are recognized, one finds that there is a range of conditions within which the gas mask can be used safely and relatively comfortably. In fact, it is the device of choice for use under such circumstances.

Limitations & Advantages

Limitations are not unique with gas masks; every respiratory protective device has some limitations. Those for gas masks are:

(1) Since a gas mask adds no oxygen to the air being breathed, it cannot be used in atmospheres containing less than 16 percent oxygen;

(2) It is also limited to atmospheres that contain no more than 2 percent, by volume, of a single harmful gas or a combination of gases (3 percent of ammonia);

(3) Not all canisters will protect against all gases.

On the other hand, the gas mask has certain favorable features.

(1) The wearer is not hampered by trailing air lines; hence he can enter and leave a contaminated area through different openings.

(2) The gas mask is relatively light; its total weight, as worn, ranges from 3½ to 7 pounds.

(3) It is mechanically simple and requires a minimum of maintenance.

(4) Training a person to wear a gas mask is much simpler than training him to wear the more complex types of respiratory protective devices.

Many types of gas masks are available: Some have canisters designed to protect against a single gas, such as ammonia; others protect against two classes of gases, such as acid gases and organic vapors; and the universal gas masks

This article discusses the role of the gas mask in industry:

1. **Its limitations and advantages**
2. **Performance requirements for Bureau of Mines approval**
3. **Areas of use**
4. **Factors in its use**
5. **Common fallacies about the gas mask**

Dont's in Using Gas Masks

give protection against all industrial gases, vapors, and smokes.

Performance Requirements

Following is a summary of the performance requirements gas masks must meet to be approved by the Bureau of Mines. They are mentioned here to emphasize that such approval is not lightly given, and that gas masks bearing the Bureau's approval are capable of performing their intended functions:

Canisters are tested against gas-air mixtures on test apparatus to determine their capacity to remove the gas from the air and to determine the effect of dry or moist air on this capacity. In the case of universal gas mask canisters with window indicators, special tests are made to make certain that the indicator gives proper warning before the canister can allow a harmful amount of carbon monoxide to pass through it.

All parts of a facepiece are examined to see that they are properly constructed and are made of suitable materials to withstand repeated use. The gas mask facepieces are tested for their ability to be fitted in a gas-tight manner to a group of men with widely-varying facial shapes and sizes, by having the men wear the facepieces, fitted with suitable canisters, in a highly odorous atmosphere.

The canister harnesses are checked for their ability to be adjusted to small and to large men, and for their ability to hold the canister securely in the proper position on the wearer's body.

The complete gas masks are worn by men in the highest concentration of gas for which they are to be approved, usually 2 percent by volume. Since some of the gases are very irritating to the skin in this concentration, the men remain in the gas-air mixture only a few min-

How Much Do You Know About Gas Masks?

	TRUE	FALSE
1. If a person's face is covered, he is protected against gas.	———	———
2. Any gas mask is better than none.	———	———
3. The efficiency of the canister is the only thing to consider in a gas mask.	———	———
4. Conventional-type prescription spectacles, with side pieces or bows, can be worn with gas mask facepieces without interfering with the gas-tightness of the face-fit, particularly if the bows are thin.	———	———
5. If a gas mask will protect against the inhalation of a 2 percent gas-air mixture for 30 minutes, it will protect against a 4 percent gas-air mixture for 15 minutes or against a 6 percent gas-air mixture for 10 minutes under the same wearing conditions.	———	———
6. If the canister heats up, it is no good.	———	———
7. A "universal" gas mask canister can be used safely for protection against the inhalation of carbon monoxide until its resistance to breathing increases significantly.	———	———
8. "Universal" gas mask canisters will protect against the inhalation of all types of gases for two hours or until the window indicator changes color.	———	———
9. The head harness of the gas mask facepiece should be adjusted only tight enough to be "comfortable."	———	———

The correct answers to the above questions are given in the text on the next page under the heading, "Fallacies About Gas Masks."

utes. They then return to fresh air, attach fresh canisters to the chamber containing the gas-air mixture, and perform a set schedule of exercise while wearing facepieces connected to the canisters by long breathing tubes. The life of a canister is the time that elapses from the start of the test to the first odor of gas detected by the wearer. To meet the requirements of this test, the gas mask must give complete respiratory protection to the wearer for 30 minutes for all types except the universal gas mask, which shall give complete respiratory protection against carbon monoxide for 30 minutes; organic vapors, such as carbon tetrachloride, for 25 minutes; acid gases, such as phosgene, sulfur dioxide, and chlorine, for 15 minutes; and ammonia for 15 minutes. Since carbon monoxide cannot be detected by the sense of smell, the protection afforded by the gas mask during the man-test against carbon monoxide is determined by checking on the degree of saturation of the wearer's blood with carbon monoxide at the end of the 30-minute test period.

Gas mask canisters with mechanical filters for removing dust, fume, fog, and smoke are machine-tested against either specially-prepared tobacco smoke or dioctyl phthalate (DOP) smoke to determine their filtering efficiency. They also are worn by men in a dense cotton waste smoke and in a tin tetrachloride smoke.

The resistance of the complete mask to air drawn through it at the rate of 85 liters (3 cubic feet) per minute must not exceed 3½ inches of water for most types, or 3¾ inches of water for universal gas masks or other types with canisters having special mechanical filters.

Areas of Use

Gas masks are widely used by men in fumigating buildings and grain bins, in operating and maintaining chemical plants, in tank-gauging operations of the petroleum industry, in fire-fighting work, and in missile-fueling activities, to name only a few.

In general, gas masks should not be used as a substitute for good engineering practices, such as controlling toxic gases and vapors at the source or removing or diluting them through ventilation. Hence, in industry, gas masks usually are not worn throughout the working day, but are used for short periods during repair or adjustment operations, or are kept ready for emergencies such as fires or ruptured pipe lines.

How to Use Gas Masks Safely

If, after considering all the foregoing factors, you decide to use gas masks, the proper type and quantity should be purchased and the location for each mask should be chosen **so the mask will be readily available when needed.** It is advisable to store gas masks intended primarily for emergency use just outside the area where a gas emergency might occur. We know of instances where sudden outbursts of gas have occurred and all the available gas masks were in the gassed area and thus were inaccessible. What might have been a minor mishap thus became a serious matter because the situation worsened while other gas masks were being obtained.

Each person who might be called upon to use a gas mask should be properly trained in its use. The training should cover the following:

(1) A discussion of the reasons for using the gas mask;

(2) A description of its construction, operating principles, and limitations;

(3) Instruction in the proper fitting of the gas mask to the wearer and in testing it for gas tightness;

(4) Actual wearing of the gas mask in normal air while engaging in activities that would be expected in an emergency situation;

(5) Wearing of the gas mask in an atmosphere containing an odorous material, such material being removable by the canister being used; and

(6) Instruction in the proper use and maintenance of the gas mask.

The instructor should be familiar with, and guided by, the material on the instruction card inside the lid of each gas mask case. He also should know the information given on the canister and gas mask labels.

A convenient training atmosphere that requires no specially prepared gas chamber, but which can be safely created in almost any room makes use of isoamyl acetate, commonly called "banana oil." A concentration of 1,000 parts per million (p. p. m.) of isoamyl acetate in air is used by the Bureau of Mines as a screening test for the gas tightness of gas mask facepieces before they are worn in highly toxic atmospheres. Such a vapor-air mixture can be prepared by vaporizing 173 milliliters of liquid isoamyl acetate for each 1,000 cubic feet of air in the room. This is done by placing a saturated wick in front of an ordinary office fan. Of course, this atmosphere can be used only with gas masks having canisters that remove organic vapors from air drawn into them.

Several important points should be observed in using gas masks:

The wearer of a gas mask should be certain that the atmosphere he is about to enter is not deficient in oxygen.

He should enter the contaminated area cautiously and, if the odor of the contaminant is noted, he should return to fresh air and correct the cause of the leakage in his gas mask.

He should always return to fresh air before replacing an exhausted gas mask canister with a fresh one.

He should be sure that he is in fresh air before removing the facepiece.

If a highly toxic atmosphere is to be entered, and there is any doubt as to the length of remaining life of a partially-used canister, a fresh canister should be used. It is dangerous to try to squeeze the last few minutes of life out of a gas mask canister.

Wherever practicable, the "buddy" system should be used.

Fallacies About Gas Masks

On the basis of inquiries received by the Bureau of Mines over the years, it is evident many false notions prevail concerning gas masks. This is a place to discuss some of these erroneous concepts—some of which sound logical and others obviously far-fetched. One of the far-

fetched ideas is that wearing of a gas mask will offset the harmful effects of gas inhaled prior to donning the mask. The **truth** is that a gas mask would prevent inhalation of additional gas, but it would have no curative properties to overcome the effects of the gas already inhaled. Further **false** notions are indicated in the series of "True and False" questions about gas masks on page 11. Here are the correct answers:

(1) If a person's face is covered he is protected against gas.
This is false. The idea may sound fantastic, yet we know of cases where men have put on gas mask facepieces **only** and have entered noxious atmospheres. They found out their mistake the hard way. A gas mask facepiece alone, without the canister, gives no protection against harmful gases.

(2) Any gas mask is better than none.
This false notion has prompted veterans of the armed forces to use surplus or souvenir service gas masks incorrectly for protection against ammonia or carbon monoxide or in oxygen deficient atmospheres.

(3) The efficiency of the canister is the only thing to consider in a gas mask.
This is false. An efficient and effective canister is essential, but it is equally essential that the proper facepiece be used, that it be in good repair, and that it be fitted to the wearer's face in a gas-tight manner as proven by the proper tests.

(4) Conventional-type prescription spectacles, with side pieces or bows, can be worn with gas mask facepieces without interfering with the gas-tightness of the face-fit, particularly if the bows are thin.
This also is false. Many tests made by men with varying facial shapes and sizes in a gas-filled chamber at the Bureau of Mines have proved this to be erroneous. Two gas mask facepieces now manufactured have provisions for **supporting** prescription eye glasses **within** the facepiece, but in neither facepiece is there anything between the facepiece and the wearer's face.

(5) If a gas mask will protect against the inhalation of a 2-percent gas-air mixture for 30 minutes, it will protect against a 4-percent gas-air mixture for 15 minutes or against a 6-percent gas-air mixture for 10 minutes under the same wearing conditions.
This is false. It is not correct to extrapolate to concentrations higher than 2 percent (3 percent for ammonia), since canisters are designed to handle this concentration of gas, but might allow some of the gas to leak through the granular fill at higher concentrations, depending on the type and the thickness of absorbent. Extrapolation to concentrations lower than 2 percent is correct; for instance, if a gas mask will protect against the inhalation of a 2 percent gas-air mixture for 30 minutes, it would be expected to protect against a 1 percent gas-air mixture for 60 minutes or a 0.5 percent gas-air mixture for 120 minutes under the same wearing conditions.

(6) If the canister heats up, it is no good.
Here is another false idea. In general, the opposite is true, particularly if carbon monoxide is known to be present. When the catalyst in the universal gas mask canister performs its intended function of converting carbon monoxide to carbon dioxide, heat is liberated in proportion to the concentration of carbon monoxide. With concentrations of carbon monoxide above 2 percent, the heat liberated can raise the temperature of the canister high enough to melt the solder on the canister. If excessive heating of the canister is noted, it is an indication that the wearer is in a high concentration of gas and that he should proceed with greater caution. The chemical or physical absorption of other gases and vapors, including water vapor, is accompanied by the liberation of heat. The amount of heat depends on the type and concentration of gas, and the type of absorbent. If a gas mask canister **does not** heat up in the presence of carbon monoxide, the wearer should return to fresh air immediately and replace the canister with a fresh one.

(7) A "universal" gas mask canister can be used safely for protection against the inhalation of carbon monoxide until its resistance increases significantly.
This also is false. The Bureau of Mines tested nine universal gas mask canisters that had been used or had been unsealed for some time. Investigators found that they gave no protection whatever against carbon monoxide. Yet the inhalation resistance of six of these canisters was essentially the same as for new unsealed canisters, and that of two others was only slightly higher. However, if the inhalation resistance of a universal gas mask canister is found to be high, the canister probably is no good and should be discarded.

(8) Universal gas mask canisters will protect against the inhalation of all types of gases for 2 hours or until the window indicator changes color.
False again. The two-hour limitation, and the indication of the time or window indicator apply **only** to protection against the inhalation of carbon monoxide. The only way to be sure if a gas mask canister is exhausted against other gases is by detecting the odor or irritating effect of these gases in the air entering the facepiece from the canister.

(9) The head harness of the gas mask facepiece should be adjusted only tight enough to be "comfortable."
Generally false. This may be true for persons with full, fleshy faces, but is definitely false for persons with thin faces. The head harness should be tightened until the wearer obtains a gas-tight fit, preferably by the "positive pressure" test. This test for facepiece fit is made by closing off the exhalation valve of the facepiece and exhaling **gently** into it to build up a **slight** positive pressure within it. A gas-tight fit is indicated by the absence of any outward leakage of air around the periphery of the facepiece. If leakage of gas is detected by odor or irritating effect when a person enters a contaminated area, while wearing a gas mask, he should return to fresh air to readjust the head harness. Such adjustment should not be made in the contaminated area because the facepiece could be pulled away from the face in so doing and thus allow a high

concentration of the gas to enter the facepiece and possibly incapacitate the wearer.

The foregoing coverage of the gas mask may seem heavy on "do's" and "don'ts." We do not want to discourage those who are using or who may choose to use gas masks. Rather, we want to "lay the cards on the table" so that, being informed, such persons can use this most useful respiratory protective device more intelligently—and consequently more safely.

Picture by courtesy of U. S. Bureau of Mines.

Aerojet Safety Program Gets Boost

The greater the specific impulse built into missile propellants, the more safety has to go along in the manufacturing process a five-day Aerojet-General Corporation-sponsored safety conference revealed.

Primarily for explosive training, the seminar was the first to be conducted by the U. S. Army Ordnance Field Safety Office in private industry. Because safety—especially industrial safety—is everybody's business, the Navy, Air Force, U. S. Bureau of Mines, the California Division of Industrial Safety, and 200 Aerojet officials were involved.

The chief problem they found was to keep safety in operations at least one jump ahead of the rapidly advancing state of the art in solid and liquid propellants which have the spotlight in national defense. At this largest complex devoted to developing and manufacturing solid and liquid rockets, in Sacramento, Calif., Aerojet and Army Ordnance officials discussed new design criteria for remote control operations and other safety practices to reduce the element of human error.

One significant safety problem discussed was that "live" ready-to-fire propellant is cast into a solid rocket case at the midway point of manufacture. Thus fifty percent of the operations are conducted on a potentially propulsive unit. This is contrasted to ammunition manufacture where the explosive is introduced in the last operation.

(Continued on page 16)

"Heads Up" for Overhead Hazards

A way to minimize hazards of overhead handling of materials in scrap yards, the Institute of Scrap Iron & Steel suggests to members, is to establish the watchword, "Heads Up." Accidents can happen in scrap yards involving workers being struck by materials handled by cranes, or even by falling crane booms, the Institute's safety consultant reports, indicating that some universal watchword is needed.

Gives Warning Call

The consultant states that in some plants, the call "Heads Up" means to look up and around for a swinging load or something falling or about to fall. Anyone noticing such a hazard gives the warning call—but the person directing the movement of the load on a crane should always call "Heads Up" to anyone in the immediate vicinity.

Suggestions in "Brief"

The safety tip was contained in one of the recent Safety Management Briefs issued regularly to ISIS members. The brief continues with a suggested procedure for starting a "Heads Up" campaign in a scrap yard by indoctrinating all supervisors, crane operators, and finally, all workers.

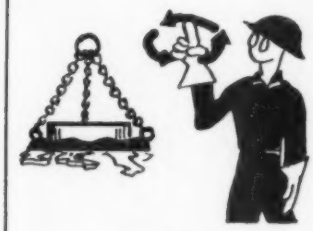
The Brief includes a poster for bulletin boards with drawings showing the standard signals for use with cranes. It is reproduced on the opposite page.

Start a "HEADS UP" campaign in your yard, suggests the Brief by following this program:

A FIVE-POINT PROGRAM

1. **Discuss the project with all supervisors and crane operators. Supervisors should then instruct all workers in the meaning of "HEADS UP." Crane operators are to make certain that the warning has been given before moving a load into an area where men are working.**
2. **Advise all workers not only to pay attention to the "HEADS UP" signal, but also to get out of the way so that loads will not pass over (or *on*) them.**
3. **Instruct crane operators to make sure that all men are in the clear so no load will go over them. The "HEADS UP" warning is not to take the place of the regular warning signal on the crane; operators should be instructed to sound the warning bell or horn as the usual precaution signal.**
4. **Where it is necessary to raise or lower loads where men are working, a signal man should be posted on the ground to give signals to the crane operator.**
5. **Instruct and drill signal men in the use of standard crane signals using the poster. Place poster on bulletin board.**

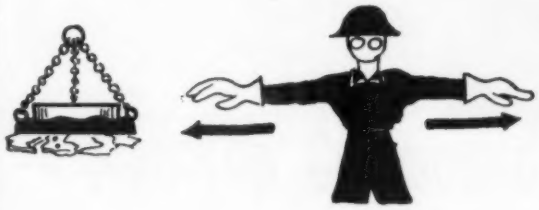
STANDARD SIGNALS FOR USE WITH CRANE



RAISE THE LOAD

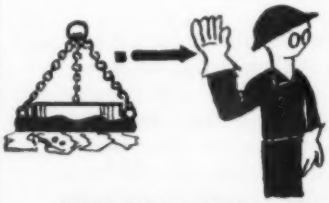
LOWER THE LOAD

SWING LOAD IN DIRECTION HAND POINTS



STOP

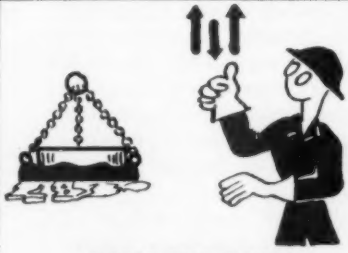
DOG EVERYTHING



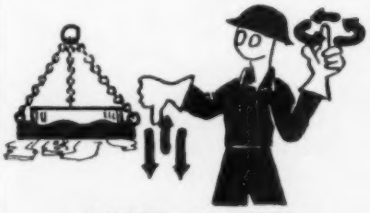
TRAVEL IN DIRECTION SIGNAL MAN FACES

RAISE THE BOOM

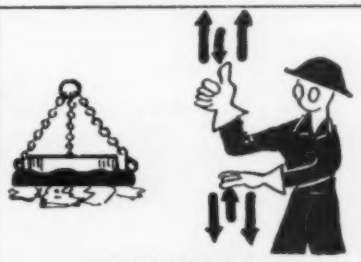
LOWER THE BOOM



RAISE THE BOOM AND HOLD THE LOAD



LOWER THE BOOM AND RAISE THE LOAD



RAISE THE BOOM AND LOWER THE LOAD

INSTITUTE OF SCRAP IRON & STEEL INC.

Another Injury Checked

Safety Spectacles Save Eyes of Safety Spectacle Worker

Ignac "Zack" Zarzycki, of Southbridge, Mass., is looking at the world today through two good eyes, thanks to American Optical Co.'s safety program. A tool and die maker, employed in the firm's frame plant for the past 18 years, Zack was struck squarely in the center of the right lens of his safety spectacles by a flying piece of steel traveling at high velocity.

As the accompanying picture shows, the hardened safety lens was broken into a web-like pattern, but did not shatter or splinter. Dr. Roger E. Allen, AO physician who examined Mr. Zarzycki immediately after the event stated:

"Evidence shows that the piece of metal was headed directly toward the eyeball, and would have entered the cornea with great force, very probably resulting in the loss of sight for that eye."

Long Safety Emphasis Pays Off

Jesse A. Blackburn, plant safety supervisor, said that this was the first such case in nearly a quarter of a century in the American Optical plant. On the previous occasion, an eye was saved in a similar manner. He also pointed out that this was a prime example of a company practicing what it preaches; since AO is one of the world's leading manufacturers of eye protective devices for industry.

One sidelight in the near-accident is that Zack is now automatically eligible for membership in the national organization known as "The Wise Owls Club." This is made up of over 23,000 workers throughout the nation who have had an eye saved by wearing their safety spectacles.

Zack's comment on the whole affair:

"18 years of putting the goggles on really paid off."

Aerojet Program

(from page 14)

The Ordnance Field Safety Office, represented by Ray L. Myers and H. L. Deans from Liberty Arsenal, Jeffersonville, Ind., prepared a syllabus on solid propellants from raw material through shipment of finished product. Guest instructor for one session was Edward Roberts of the U. S. Bureau of Mines who presented a spectacular demonstration of hazards created by static electricity.

F. S. Miller, manager of the Safety Division of Aerojet's Solid Rocket Plant, said Aerojet had conducted its safety program for years in strict accordance with Ordnance Safety Manual 7–224, the general industrial safety guide for handling explosive products. This manual was used as a text by the Field Safety Office lecturers who brought evidence of safety practices and hazards found in industry across the nation.

Miller said Aerojet's safety record far bettered the average of the chemical industry as a whole.

"Safety of our personnel comes before any other consideration at Aerojet," he said.

Extreme Chemical Hazards

A plant manufacturing nerve gas "over a million times as toxic as carbon monoxide" was operated for five years without a single fatality and "with a lost time accident record comparable with the best of those in (the chemical) industry." The plant was designed by chemical engineers at the Rocky Mountain Arsenal at Denver, Colo., without the "benefit" of a pilot plant, John W. Kenney, of the Rocky Mountain Arsenal, told a symposium on toxic plant construction during the 53rd Annual Meeting of the American Institute of Chemical Engineers.

In the five years of operation there were 13 temporary disabling injuries; only one of these lost time accidents could be attributed to a nerve gas exposure; there were 3,559 minor or first aid-type accidents, of which 1,000 were attributed to inhalation of nerve gas.

(Continued on page 38)

W. H Muller, *The Houston Post*, looks on as non-slip copound is applied to clamps of truck hauling newsprint.

Non-Slip Compound Tightens Clamp's Grip

By surfacing worn clamps on lift trucks with a bonding resin impregnated with grit, *The Houston Post*, Houston, Texas, has eliminated frequent and costly metalizing of these parts.

The clamp trucks are used in removing 1650-lb. paper rolls from railroad boxcars to storage areas near the presses. The weight of the rolls and the continuous activity of the trucks soon wears the manufacturer's non-slip material from the clamp surfaces.

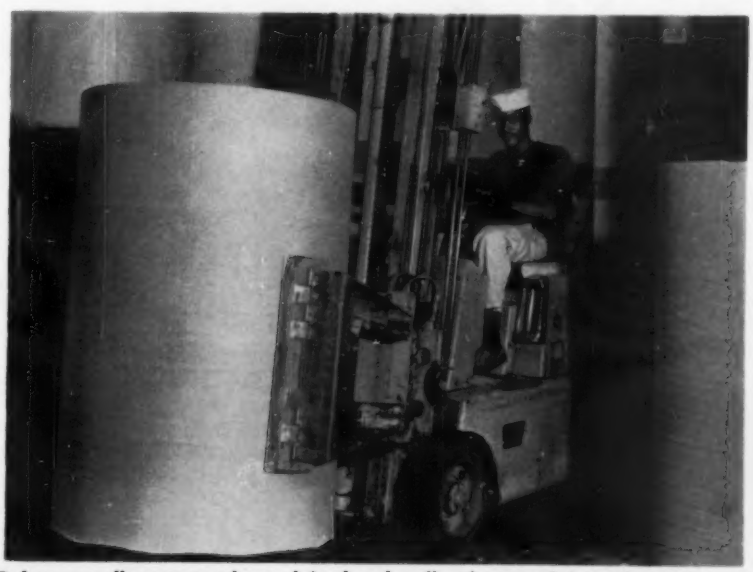
Prior to the use of the impregnated resin, the *Post* maintenance staff dismantled the clamps and sent them out for metalizing—a process requiring several days and costing some $35 per set of clamps.

After a successful application of the resin to floors of the *Post* Stereotype Department, W. H. Muller, purchasing agent, believed that the product would prove an effective substitute for metalizing.

His hunch was justified: after a full year of service on a couple of clamp trucks, the coating of abrasive-resin compound shows no sign of wear.

"We've saved the cost of metalizing the clamps, and we've also done away with roll slippage," says Mr. Muller. "Though there was no real hazard involved if a roll slipped from the clamps, the roll was usually damaged."

The compound is available in kit form. The kit consists of the resin bonding agent, accelerator, aluminum oxide grit, and applicator. Surfaces to be coated are cleaned and given an initial application of resin, after which the abrasive is sprinkled



Before non-slip compound was introduced, rolls of newsprint costing $100 each would frequently slip as clamps wore smooth, resulting in possible losses.

on while the coating is still wet. After one hour's drying time, excess grit can be swept off and reclaimed.

A second coating of the bonding mix is then brushed or rolled on over the grit. The accelerator hastens hardening or curing. Edges, sides and corners of the grit particles protruding above the resin form the slip-proof surface.

The primary use for the anti-slip material is on plant floors (at *The Houston Post* it protects Stereotype Dept. employees from hazardous falls on floors which at times may become slick from oil or water), on ramps, slopes and stair treads and around machines. It can be applied on concrete, metal or wood . . . indoors and out-of-doors. Mr. Muller points out too, that the compound could well be used on all types of revolving roll clamps, bale clamps, and drum clamps.

Pictures by courtesy of Mine Safety Appliances Co.

Any Suggestions?

An Air Force pilot poses this problem: For high performance aircraft, the pilot must have an elastic, touch-sensitive glove that will also give protection against flash fires in the cockpit and solar-heated surfaces of the aircraft.

Any ideas?

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Dr. Stack Joins SIU Summer Faculty

A man known as the "dean of safety education," Dr. Herbert J. Stack, will join the Southern Illinois University faculty for the 1961 summer session, Dr. James Aaron, coordinator of SIU's Safety Center, announced.

Stack, program associate of the Center for Safety Education at New York University, will serve as a distinguished visiting professor in the College of Education's department of health education.

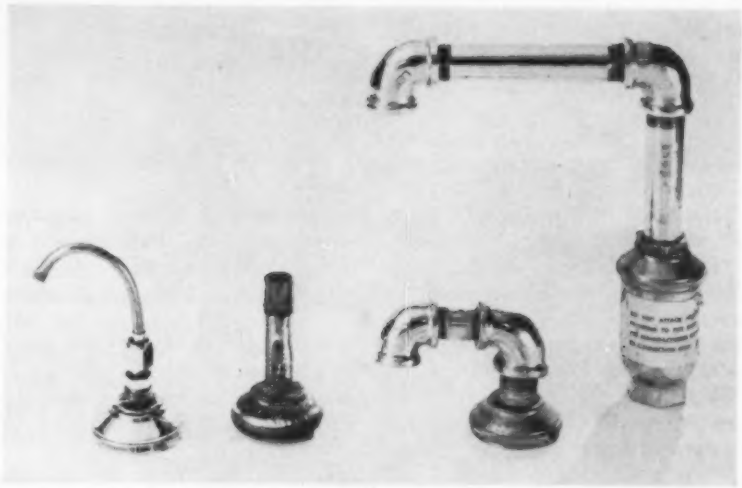
The pioneer safety educator has received every honor as a safety teacher, Aaron said, including the Hoffman award. At Southern, he will direct a summer "Workshop in Safety Education" and teach a graduate course in "Problems and Research in Accident Prevention." Stack will also serve as a consultant to the University in an effort to evaluate, expand and improve its current safety education program.

The eighth annual National Conference on Campus Safety will be held at SIU June 15–16. It will be of primary interest to those persons on campuses engaged in some phase of safety—security officers, student activities and student affairs officials, personnel managers, and others.

Among the subjects slated are "Making Your Program the Universities Program," "Urban College Problems," "Student Accident Reporting and Investigation," "Parking and Traffic Enforcement," "Student Utilization and Security," "Problems—Bicycles and Motor Scooters," "Library Fires," "Safety in Residence Halls," and "Safety—Off-Campus Housing."

A

Coffee Urns with Tampered Safety Valves Brew Danger



B

A
Shown here is a steel coffee urn damaged by variations in pressure caused by restriction of the safety valves.

B
Valves from damaged urns show devices preventing normal functioning.

Increasing numbers of expensive coffee urns are being damaged by plumbers, maintenance men, equipment dealers, food service operators and architects who supervise the urns' installation and operation in the more than half a million restaurants and institutions in the United States and Canada.

The trouble, according to Bruce Blickman, vice-president of S. Blickman, Inc., one of the country's largest manufacturers of coffee urns, stems from thoughtless obstruction of the safety valves designed to relieve steam pressure in the urn. "No plumber, architect, equipment dealer or restaurant man would be so foolish as to impede the safety valve of a large boiler. The danger in the build-up of pressure would be obvious. But these same people do not hesitate to do exactly that to the safety valve of a coffee urn," he reports. "Since urns must relieve excess pressure or vacuum—the result of safety valve obstruction is collapse, and severe damage to a piece of equipment worth hundreds of dollars. The additional cost to a restaurant of even a temporary interruption of coffee service can scarcely be calculated."

According to Mr. Blickman, most urn manufacturers provide warnings on the safety valves themselves, and also in complete installation and operating instructions. Yet, collapsed urns, with the warnings ironically still attached, come back with relief valves fitted with odd pieces of piping or other restricting fittings so as to make them inoperable.

Whenever heat is applied to a closed vessel containing water, pressure is developed. Either the vessel must be made strong enough to contain the pressure or the pressure must be relieved.

All urns, therefore, have relief valves. This is usually a simple weight or spring-loaded valve that is opened by the generated pressure and permits the escape of steam. It is similar to the safety valves on most household pressure cookers. Naturally, these valves permit steam to escape, and this normal feature is the problem. An urn that is thermostatically-controlled with a properly-set thermostat releases into the air a mere wisp of vapor. Urns that are not thermostatically controlled should have their sources of heat turned

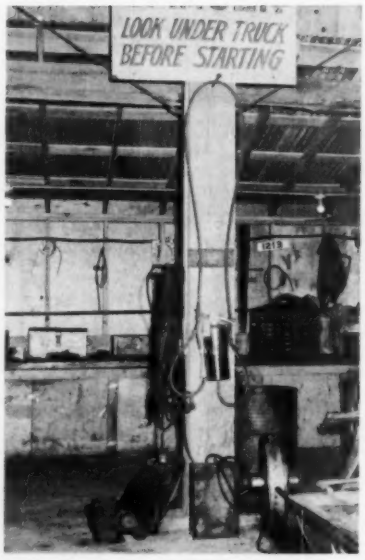
A SAFETY IDEA

Emergency Slings

B. L. Sheridan, Safety Engineer for the U. S. Army Engineer District in Walla Walla, Wash., has presented an idea that, by saving precious time, could save the life or lessen the injury of an accident victim.

In the summer of 1957 at the Ice Harbor Dam Project in Washington, a concrete truck was being repaired in a maintenance shop. The truck had been blocked up, but slipped off the blocks when struck by another truck being moved in for repairs. Fortunately, no one was under the truck at the time of the incident. But the accident so impressed the mechanics as a possible source of future injury that the subject was brought up for discussion at the next "tool-box" safety meeting of the shop crew. A tire man, A. K. Starkey, suggested that cable slings be placed in the shop for emergency use. In case a mechanic was pinned under a piece of equipment, personnel would not have to look for a cable sling to attach to the overhead crane for lifting the equipment from the victim. Valuable time could be saved toward protecting the man's life or preventing permanent injury.

Accordingly, several ¾" cable slings with 15-foot shackles were made up, painted red, and placed



in prominent, suitable locations around the shop. Each sling is accompanied by a sign: "For Emergency Only." The picture shows one of the slings suspended on a post. Although the "Emergency" sign is not legible in this photograph, it can be seen as a small sign a couple of feet above the fire extinguisher.

Incidentally, none of the red emergency slings have had to be used during the three years of their existence, but they are still there ready for a critical situation should it arise.

COFFE URNS *(Continued)*

down when the water reaches the boiling point, and they, too, will produce no more than a wisp of steam.

But, if operators tend to permit their urns to chug like steam engines, releasing clouds of vapor, or where urns are mounted so that they are accessible on both sides, it is sometimes desirable to fit a specially designed fitting and tube to collect the condensate and return it to the drain. Most urn manufacturers will install such a "gooseneck" so that the safety valve is not hampered.

Instead of utilizing the manufacturer's "gooseneck," Mr. Blickman reports, almost every type of restraint for the valve has been installed—including piping many feet long in which the steam condensed and added to the pressure,—restricted openings, narrow tubes, nipples and even rags. These restrictions to valves also prevent their acting as vacuum breakers when water is removed from the urns. The pressure on the vessel is then from the outside, and this, too, can cause collapse.

Mr. Blickman concluded: "Leave the safety valve free to work—and there is no problem."

Pictures by courtesy of S. Blickman, Inc.

'61 Foundry Meeting To Discuss Safety

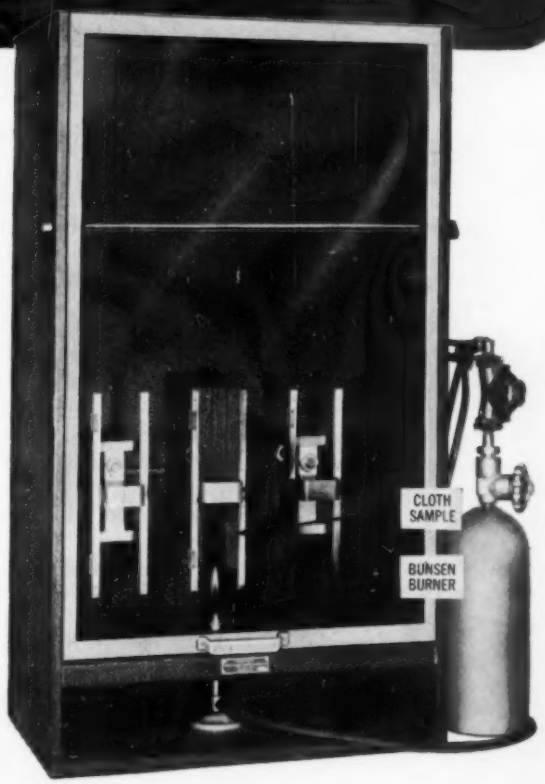
The American Foundrymen's Society, international technical society for the metal casting industry, announces that the 29th International Foundry Congress has been scheduled for Detroit's Cobo Hall in May 1962, to coincide with the 66th AFS Castings Congress and Exposition. At this event, the AFS will play host to the entire International Association of Foundry Technical Committees, comprising technical groups in 22 countries around the world.

To permit maximum concentration on the huge 1962 event, the Society has announced cancellation of a limited exposition originally scheduled to be held at San Francisco in May, 1962. Instead, the Society will stage, in San Francisco in May, 1961, its 65th technical Castings Congress as one of the largest technical symposia on foundry practice ever held.

Requirements of aircraft and missiles manufacturers will play a prominent part at the 1961 Castings Congress in San Francisco, May 8–12, the first such national Congress ever held on the West Coast. Of the more than 80 papers already committed, many deal with technical advancements in the die casting and light metals fields. The entire range of cast metals will be covered, including steel, gray iron, ductile iron, brass and bronze and malleable iron.

Related subjects of foundry sand, patternmaking, air pollution, plant safety and working conditions, cost controls and foundry mechanization will also be dealt with in the numerous papers, lectures, shop courses, round-table meeting and panels now scheduled. The annual Hoyt Memorial Lecture will be presented by John B. Caine of Wyoming, Ohio.

FROM START TO FINISH



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SAFETY EQUIPMENT

FOR HANDLING —

Formaldehyde

The accompanying article is from "Chemical Safety Data Sheet for Formaldehyde" published by the Manufacturing Chemists' Association, Inc. The complete data sheet, in addition to this information on personal protective equipment, also covers formaldehyde properties, hazards, engineering control, handling and storage, tank and equipment cleaning and repairs, waste disposal, medical management, and first aid. Copies of the complete data sheet (Revised SD-1) are available for 30¢ from: Manufacturing Chemists' Association, Inc., 1825 Connecticut Ave., N.W., Washington 9, D.C.

The correct usage of personal protective equipment requires the education of the worker in proper employment of the equipment available to him. Under conditions which are sufficiently hazardous to require personal protective equipment, its use should be supervised and the type of protective equipment selected should be capable of control over any potential hazard.

The following personal protective equipment should be used when indicated.

Eye Protection

Chemical Safety Goggles: Cup-type or rubber framed goggles, equipped with the approved impact resistant glass or plastic lenses, should be worn whenever there is danger of formaldehyde coming in contact with the eyes. Goggles should be carefully fitted.

Spectacle-Type Safety Goggles: Metal or plastic rim safety spectacles with unperforated side shields can be obtained with prescription safety lenses or suitable all plastic safety goggles may be used where continuous eye protection is desirable, as in laboratories. These types, however, should not be used where complete eye protection against formaldehyde is needed.

Face Shields: Plastic shields (full length, eight inch minimum) with forehead protection may be worn in addition to chemical safety goggles where complete face protection is desirable. Chemical safety goggles should always be worn as added protection where there is danger of material striking the eyes from underneath or around the sides of the face shield.

Respiratory Protection

Severe exposure to formaldehyde may occur in tanks during equipment cleaning and repairs, when decontaminating areas following spills, or in case of failure of piping or equipment. Employees who may be subject to such exposures should be provided with proper respiratory protection and trained in its use and care. Available types are described below.

NOTE: Respiratory Protective equipment must be carefully maintained, inspected, cleaned and sterilized at regular intervals, and al-

ways before and after use by another person.

(a) Self-Contained Breathing Apparatus which permits the wearer to carry a supply of oxygen or air compressed in the cylinder, and the self-generating type which produces oxygen chemically, allow considerable mobility. The length of time a self-contained breathing apparatus provides protection varies according to the amount of air, oxygen or regenerating material carried. Compressed oxygen should not be used where there is danger of contact with flammable liquids or vapors, especially in confined spaces such as tanks or pits.

(b) Positive Pressure Hose Masks which are supplied by blowers requiring no internal lubrication. The wearer must be able to use the same route for exit as for entrance and must take precautions to keep the hose line free of entanglement. The air blower must be placed in an area free of contaminants.

(c) Air Line Masks supplied with clean compressed air are suitable for use only where conditions will permit safe escape in case of failure of the compressed air supply. These masks are usually supplied with air piped to the area from a compressor. It is extremely important that the air supply is taken from a safe source, and that it is not contaminated by oil decomposition from inadequate cooling at the compressor. The safer method is to use a separate compressor of the type not requiring internal lubrication. Pressure reducing and relief valves, as well as suitable traps and filters, must be installed at all mask stations. An alternate arrangement frequently used is high pressure breathing air from standard (200 cu. ft.) cylinders, with a demand-type valve and facepiece. This arrangement may also be used with 50–100 lb. clean piped plant air, and, as an additional precaution with the demand mask, a small cylinder of compressed air may be worn for use as an emergency escape from the area. Consult a reliable safety equipment dealer for details on the proper use of Bureau of Mines approved equipment.

(d) Industrial Canister Type Gas Masks, equipped with full face pieces and approved by the U. S. Bureau of Mines, fitted with the proper canister for absorbing formaldehyde vapor, will afford protection against concentrations not exceeding 2 percent by volume when used in accordance with the manufacturer's instructions. The oxygen content of the air must not be less than 16 percent by volume. The masks should be used for relatively short exposure periods only. They may not be suitable for use in an emergency since, at that time, the actual vapor concentration is unknown and an oxygen deficiency may exist. The wearer must be warned to leave the contaminated area immediately on detecting the odor of a harmful vapor. This may indicate that the mask is not functioning properly, that the vapor

(Continued on page 38)

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Edited by HENRY M. GROSMAN
Counselor at Law, Newark, N. J.

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BACK INJURY—Alleged Reccurence of Disability

The claimant injured his back during the course of his employment as a result of lifting a heavy metal flange. His condition was diagnosed as low back strain and as a result of the injury he was temporarily disabled. He was discharged by his physician as cured and fully recovered. Claimant was then free of pain in his back for a period of seven months until he developed a gradual onset of pain. Thereupon he filed a claim for permanent partial disability of his spine. The examiner and commissioner determined that the claimant's alleged disability was due to causes wholly unrelated to the previous accident. Claimant attacked this finding contending that it was not supported by any evidence in the record. The court ruled that, even if such finding were based on speculation, the order should not be set aside because the finding was surplusage. The only necessary finding was that the claimant did not sustain his alleged disability as a result of the injury, which finding was supported by the medical evidence. Claimant's doctor testified that the claimant was suffering from an impending disc lesion due to the accident, resulting in 10% permanent partial disability. Another doctor testified that there was a possibility but not a probability of disc involvement and, further, that one would have to speculate if the recurrence of symptoms, after the lapse of a seven-month pain-free period, is to be attributed to the accident. The examiner was justified in accepting this testimony over the testimony of the claimant's doctor, and, in addition there was the testimony of a third doctor, who stated that the disability had no relationship to the previous accident, which would also support the finding. Affirmed.

Frankowiak vs. Industrial Commission; Wisconsin Supreme Court. No. 98, November 29, 1960.

CAUSAL CONNECTION BETWEEN FALL AND BACK INJURY

Claimant was not entitled to compensation because the record failed to disclose manifest error in the district judge's determination that there was no causal connection between the accident in question and the claimant's back injury. The claimant while engaged in racking pipe on an oil derrick was knocked to the floor of the platform on which he was standing. The only objective evidence of injury was a minor and noncompensable laceration of the claimant's right knee. He continued to work for two or three days, after which time he voluntarily discontinued his employment. He first sought treatment for his back 17 days after the occurrence of the accident. It was discovered that he was suffering from a serious back condition and, after conservative treatment, a laminectomy was performed to remove the third, fourth and fifth lumbar discs. The sole issue was whether or not the claimant established a causal connection between the accident and his disability. This issue was resolved against the claimant. Although he testified that he immediately complained of a back injury, such fact was denied by all of his co-workers, including his brother who was foreman of the crew on duty. In addition, the claimant continued working after the accident without complaint. Such evidence supported the district judge's finding. Affirmed.

Martin vs. Fidelity & Casualty Co. of New York; Louisiana Court of Appeal, Second Circuit. No. 9359, December 1, 1960.

EMPLOYEE OR VOLUNTEER—Services Rendered to Church

Claimant, who was injured while cleaning the kitchen of a church, was not entitled to workmen's compensation because she was not an employee of the church but was a volunteer worker. The claimant, and other ladies, responded to a request from the pastor of the church and performed valuable services. A church organization of which the ladies were members furnished them with food, but the ladies received no other material benefit. They were motivated by their re-

ligious and moral obligations. As far as the record discloses, the ladies divided the task among themselves, and each performed her work without direction as to the details of the work. Unless the food was contemplated as compensation for services rendered, it was clear that there was no contract of hire and there was no duty on the part of the church to pay the reasonable value of the services rendered. The court ruled that though the evidentiary facts were undisputed, conflicting inferences could reasonably be drawn and that, therefore, it would not reverse the commission's finding that the claimant was not an employee. Affirmed.

Enderby vs. Industrial Commission; Wisconsin Supreme Court. No. 129, November 29, 1960.

COVERAGE BY ACT—Son Working for Partnership of Father and Sons

The claimant was not barred by the Workmen's Compensation Act from recovering for injuries sustained while he was working for a partnership of which his father and brothers were members. At the time of the accident, he was living with his parents, paying board and room of $30.00 a month. His injury arose out of and in the course of his employment; he was working with a log jammer when a cable lashed and struck him causing a compound fracture of the leg and totally disabling him for an indeterminate period. Liability was denied on the statutory ground that he was a member of the employer's family, living in the employer's household, and that coverage of his employment had not been elected under the Act. However, the court held that the Idaho statute defining an "employer," while not specifically designating a partnership, is broad enough to include a partnership and that the claimant was employed by the partnership, not by his father as an individual, thus removing him from the household exemption in the Act. Reversed and remanded.

Carter vs. Carter Logging Company; Idaho Supreme Court. No. 8926, December 8, 1960.

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(For details, use Key # C-8 on card on page 1)

Maintenance Conference
(from page 9)

distribution system, short circuit studies, system loads, and the coordinating of network protectors are important steps in selecting and setting equipment to clear system failures as rapidly and safely as possible. These steps are often overlooked and have produced severe failures due to the inadequacy of the power system equipment.

Proper equipment grounding is also an important safety factor, especially where personnel are using hand or portable tools. Grounding limits the voltage to which personnel and equipment can be exposed in case of a failure and enables the network protectors to act with greater speed in removing faults from the system. A grounded system also enables the use of better lightning protection equipment by limiting the system maximum operating voltage. Equipment grounds should be of low impedance. If they are not, the system has char-

acteristics much the same as an ungrounded system during short circuit conditions. In the event of failure, personnel and property are endangered to a greater degree than in the low impedance grounded system.

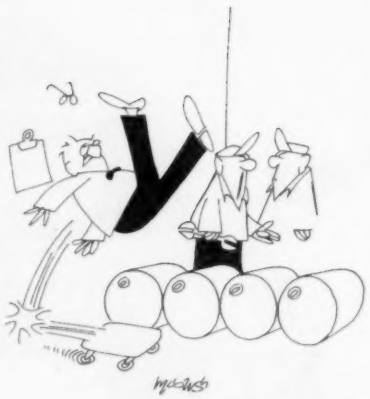
Plant Design

John M. Connelly, plant engineer for the Royal McBee Corp., Springfield, Mo., outlined the plant engineer's responsibility for building design and construction. In discussing plant protection and security, Mr. Connelly pointed out that practical and thoughtful plant design can do much to effect operational savings. Combination fire alarm boxes and watchman stations are recorded on a single tape. The heart of such equipment must be located where there is round-the-clock supervision, the powerhouse for example. Close cooperation with insurance underwriters in regard to the installation of sprinkler systems, extinguishers, piping mains, and other fire protective and preventive features can result in lower insurance rates that easily justify the adoption of underwriters' recommendations. Fire-safe construction and materials, fire walls and curtains, are all design considerations.

Safety must be built into the plant at the very start. Provisions must be made for effectively exhausting explosive atmospheres such as are found in paint spray booths and ovens; storage and handling of flammable liquids must be considered; traffic, material-handling facilities, floor loadings, and so forth. The list is almost endless and only plant engineering is qualified to see that the individual plant's requirements are properly provided for in the planning of a new facility.

Minimum Requirements

In discussing industrial lighting design, Mr. Connelly said that while the Illuminating Engineering Society's "American Recommended Practice on Industrial Lighting" is the accepted standard for lighting intensities in this country, the trend today is to use these standards as absolute minimum requirements only. A good, well diffused lighting



"Two bits says he doesn't clear the last barrel."

system is an asset to any plant. Where miniaturization is the product by-word, it is mandatory. It provides built-in flexibility that makes facilities relocation much less a problem. Adequate yet glareless lighting does much to eliminate operator fatigue and to encourage cleanliness within a plant. It promotes safety and general well-being throughout.

Tomorrow's Problems

In describing the design, application and results of his plant's maintenance and engineering system, John M. Link, chief of plant department, Burlington Shops, North Carolina Works, Western Electric Co., Burlington, N. C., touched on the question of how maintenance operations will change during the next decade. He suggested that the plant of tomorrow will tolerate fewer interruptions to production, its ultimate goal being none. The maintenance organization will have to meet the implied demands: expect more automation and more artificial weather, and accept the increased responsibilities associated with them.

We must meet other challenges, such as the need to develop standard diagnostic routines that any mechanic can apply. We must use new ways to spot flaws and faults—x-rays, isotope radiography, magnetic-particle and fluorescent-liquid apparatus, ultrasonic and vibration detectors. But before this, we'll need more emphasis on equipment and product design, as well as materials used, for accessibility and ease of servicing. This will call for closer rapport by maintenance with plant design and production. We'll see more continuous operation through automatic lubrication and dual motors, pumps, filters, and the like. The dual setups will provide standby, with either manual or automatic, split-second change-over.

For Quick Replacement

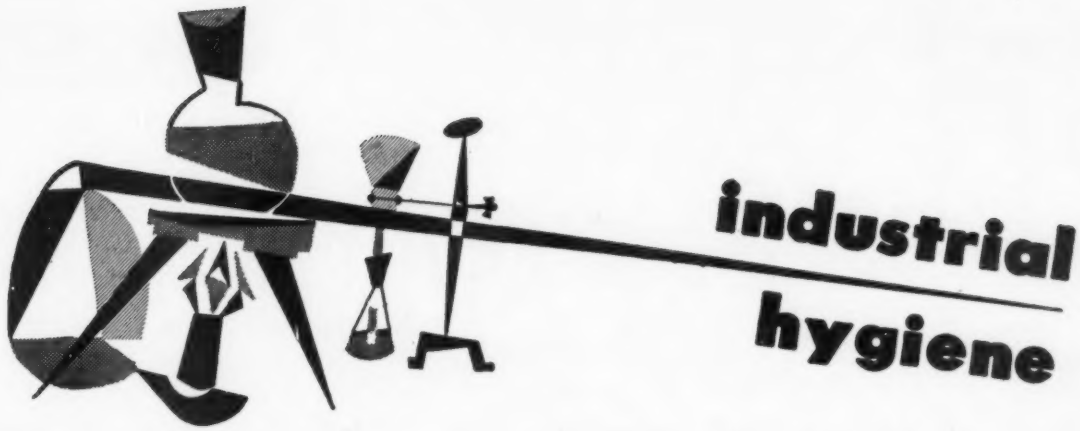
There will be more devices to signal out-of-control equipment and process failure, and more plug-in or module units for quick replacement of defectives. If a defective unit is cheap or irreparable, we'll throw it away. If it's expensive, we'll send it back to central repair. Quick change will be the word. The trend to more replacements and fewer repairs will raise another problem—huge spare-parts inventories. Standardization will be the answer.

Roy A. Anderson, maintenance foreman, plastics division, Diamond Alkali Co., Pasadena, Tex., presented case reports on preventive maintenance. He stated that design engineers sometimes overlook the problems of accessibility for maintenance painting—for example, structural steel too close to walls and other obstructions—to permit proper surface preparation and adequate paint coverage. Design considerations should also include provision for pad eyes and clips which will enable painters to rig stagings in high places properly and safely.

Safe Accessibility

During the construction phase, a close inspection should be made for safe accessibility to equipment for maintenance work. Installations of platforms, gratings and handrails around equipment can save many man-hours and minimize down time loss. We have seen many pressure transmitters installed in areas or locations so inaccessible as to make "zeroing" on the line impossible. We have also seen the removal of instruments on the panel-board made impossible due to tubing, conduits and fittings installed in the clearance area required for the instrument removal.

Picture by courtesy of General Electric Co.



industrial hygiene

Radiation Safety Course

A ten-week course in radiation safety and health physics will be offered to personnel from public agencies by the Industrial Hygiene and Safety Division of Argonne National Laboratory. The Laboratory will conduct the tuition-free course from March 13 through May 19, 1961, under the sponsorship of the U. S. Atomic Energy Commission.

The program will provide practical training in radiation safety and health physics for personnel from federal, state and municipal public agencies. Argonne's health physicists, industrial hygienists and safety engineers will conduct the training program, utilizing the extensive operating nuclear facilities available at the Laboratory.

The course is designed to lead students step by step through various phases of health physics work. Basic lectures, demonstrations and experiments will be conducted until the students are prepared to work, under supervision, in the various laboratories and other facilities of Argonne.

Following basic practical field work, they will be given further information, instruction and exercises in specific radiation programs to broaden their outlook and to increase their skills. Toward the end of the ten-week session, participants will consider existing health physics programs from the standpoint of a supervisor, developing methods for improvement.

Some of the lectures, demonstrations and experiments which will be covered include: Biological Effects of Radiation, AEC Regulations and Standards, Administration of Health Physics, Industrial Safety and Liability, Monitoring Methods, Shielding, Waste Disposal, Gamma Spectrum Analysis and Meteorology.

Field work will utilize Argonne's Research Reactor CP-5, and the Experimental Boiling Water Reactor; radioisotope laboratories; accelerators; and biology laboratories. Participants also will observe fuel fabrication and processing techniques and chemical engineering operations.

The course is tuition-free. Travel costs and living expenses will be paid by the student or his sponsoring agency.

John F. Ege, Jr., Director of the Industrial Hygiene and Safety Division at Argonne, commented:

"Representatives of state health departments and other public agencies will get a firsthand view of some successful ways to handle the practical problems of working with radiation.

"Argonne men who will act as instructors and advisors have a wealth of radiation safety experience which has been developed over a period of years. The result should be that the trainees will add to their own experience with radiation at an accelerated rate."

Ege concluded: "We hope that a continuing source of information and advice will be opened up to help the participants after they have returned to their respective locations."

Argonne National Laboratory is operated by the University of Chicago for the U. S. Atomic Energy Commission. It is located on a 3,700 acre site 25 miles southwest of Chicago. The Laboratory is one of America's leading centers of research and development of nuclear energy for peaceful uses.

Air Pollution Foundation Grants

Grants of $60,000 in cash and equipment valued at $45,000, to be used for further air pollution research, were made by the independent Air Pollution Foundation in announcing plans for its liquidation early this year.

The announcement was made by Dr. Fred D. Fagg, Jr., president of the Board of Trustees, and Dr. W. L. Faith, managing director. Faith said the Foundation "will have fulfilled its mission by early 1961" and will be able to dissolve on schedule as predicted last November.

The Foundation granted $50,000 cash to Stanford Research Institute, together with an estimated $40,000 worth of equipment now being used in SRI's South Pasadena facility, for continued research in atmospheric chemistry.

A cash grant of $10,000 was made to University of Southern California for studies on air pollution, and equipment valued at $5,000 was turned over to Southwest Research Institute, San Antonio, Texas, for continued studies on automobile exhaust.

Upon final dissolution of the Foundation, on or about May 31, all remaining assets will be donated

(Continued on page 30)

How to

[redacted] other articles April & May

SIDETRACK SKIN IRRITATIONS

Railroad conducts successful campaign against occupational dermatitis.

As an aid to its employees working in shops where chemicals and oils are involved, the Baltimore & Ohio Railroad Company's Medical Department introduced a new program, based on the latest medical findings, for the prevention and control of occupational skin irritations. Cooperating with the Medical Department in launching the program were the Safety, Research, and Motive Power Departments.

Already ranked high as a healthful place to work, the Baltimore & Ohio carries on continuous research to further improve health and safety standards among its employees. The new drive to combat dermatitis was part of this over-all program.

Biggest Hygiene Problem

That it is an important part is indicated by the fact that dermatitis is the most common of all occupational diseases suffered by American workers. Since the skin is the largest "organ" of the body, it is therefore most likely to be contacted by irritants.

In the railroad industry, the most prevalent irritants are the chemicals and oils used in work. Irritation is set up through direct action on the skin (primary irritants) or through repeated contact with the skin (secondary irritants).

Dermatitis Prevention

How can occupational dermatitis be combated? The best way is by **personal cleanliness.** While everybody takes pride in cleanliness off the job, the difficulty is that many men are careless about "cleaning up" promptly and thoroughly when they finish shop work, little suspecting that by these lax habits they could be running the risk of painful skin irritations.

To explain the dangers of such neglect and to make it easier for shopmen to protect their skin, the company launched its system-wide educational program. The program included a color sound movie, produced by its own Medical Department, bulletin board instructions on the care of the skin for posting in shop washrooms, and a series of new, medically tested cleansing and protective agents for washrooms in departments where dermatitis had been most prevalent.

Washroom Instructions: How to Prevent Skin Irritations

1. Keep body clean at all times. Change work clothes frequently, especially when oil-soaked.

2. Wash hands frequently, using hand cleaner and water. When cleaning hands with waterless soap compound, follow as soon as possible with use of regular hand cleaner and water.

3. Before beginning work, apply protective cream. Wash off prior to "breaks" (for conferences, toilet care, lunch or other reasons), but reapply before going back to work. Wash thoroughly again at the end of the shift.

4. Individuals with sensitive skin should wash hands with the special antiseptic sulphonated vegetable-oil hand cleaner.

5. When handling caustic and chemical irritants, be sure to wear protective garments, such as gloves, aprons, boots, goggles, etc.

6. DO NOT apply protective cream over dirty skin.

7. DO NOT wash hands with gasoline, kerosene, naphtha and other solvents, fuel oil, carbon tetrachloride, methyl chloroform, or harsh soaps.

8. DO NOT protect hands with coating of engine or other oils.

REPORT ALL SKIN IRRITATIONS PROMPTLY.

Read your notice carefully. Follow the instructions and protect your skin. Remember: YOUR HANDS ARE YOUR PAY CHECK—TREAT THEM GENTLY.

Electricians are shown washing hands and arms at end of shift. Campaign encourages all shopmen to protect their skin.

Commented Dr. Isadore Kaplan, company medical and surgical director: "Personal cleanliness is the most effective way of preventing and combating occupational skin irritations. Industrial dirt, grease and oil should be promptly removed from the skin to prevent clogging of the pores. Dirty underclothing and repeated wearing of oil-soaked outer clothing often cause skin irritations.

"Medical science has proven that the most effective control of skin irritations can be achieved by avoiding breaks in the skin. Many times such breaks may be caused by use of harsh, irritant soaps or abrasives. These breaks often allow pus-forming bacteria to enter the deeper layers of the skin, and this produces inflammation of the hair follicles (folliculitis or boils).

Prevention and Protection

"To prevent these irritations, the Motive Power Department is supplying its washrooms with bland soap powder, liquid hand soap, waterless hand cleaners, and antiseptic barrier protective creams.

"In addition to these substances, all shops will be provided with protective clothing for the proper handling of chemical irritants. This equipment includes such items as rubber gloves, sleeves, aprons, boots and respirators. They should be worn when indicated and kept in a state of good repair, since leakage defeats the purpose for which they were issued."

The accompanying "Washroom Instructions" for proper cleansing were issued by Dr. Kaplan and posted on shop washroom bulletin boards.

Pictures by courtesy of Baltimore & Ohio Railroad Co.

Electrician at B&O shop demonstrates proper use of antiseptic cream for preventing dermatitis before starting job.

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Air Pollution Foundation Grants

(from page 27)

to Caltech for additional research work in the field of air pollution. Faith said it is impossible to estimate the probable value of the residue assets at this time.

The Foundation was organized in 1953 by 200 civic leaders to determine the nature of Southern California smog and the methods by which it could be eliminated. It was incorporated under California state law as a private, non-profit, scientific research organization, and was set up to be self-liquidating upon accomplishment of its purpose.

Actual work was started in 1954. By the time it disbands, the Foundation will have spent nearly $3,500,000 in its seven years' work on the smog problem. Its fact-finding program has been financed by the contributions of industrial, business, financial and professional firms, trade associations, and private citizens.

Foundation officials pointed out that the organization's basic research during its first three years (1954–55–56) produced much new information about air pollution, including the final conclusive proof that auto exhaust was the major factor in Los Angeles smog. Since 1957, virtually all of the Foundation's work has been on the auto exhaust problem.

Radioactive Hydrogen Disposal

First details of the radioactive hydrogen disposal system designed for the Indian Point, N. Y., nuclear power reactor were revealed by Engelhard Industries, Inc. at the Instrument Society of America's exhibition at the Coliseum in New York. The firm's Chemical Division has designed the system for the Consolidated Edison Company reactor.

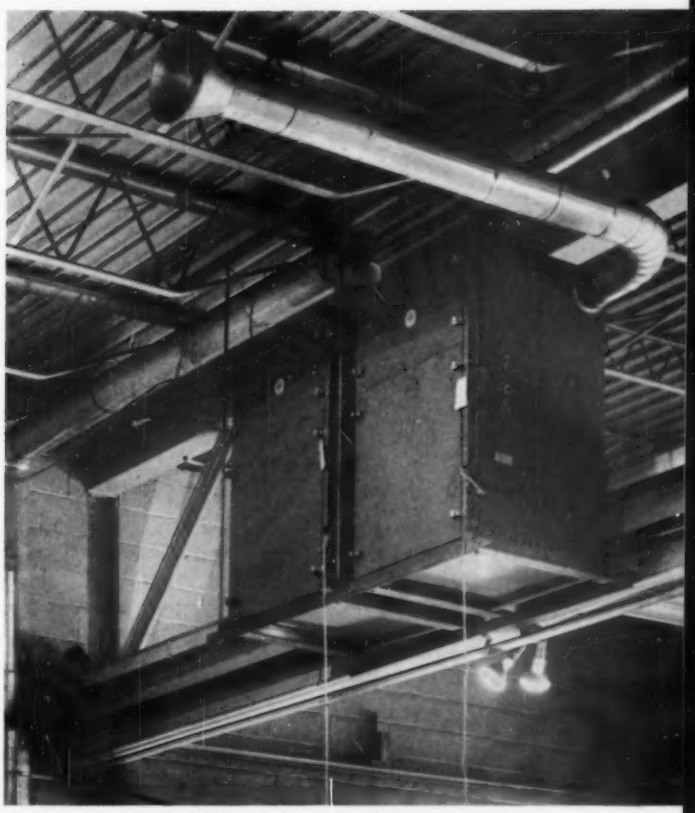
Consisting of two separate systems, both fully instrumented for automatic start-up and shut-down, the installation prevents the accumulation of potentially explosive hydrogen-air mixtures in addition to separating the hydrogen from the radioactive rare gases. It does so by the very simple expedient of combining the hydrogen with oxygen to make water by means of a platinum catalyst, leaving only a small quantity of radioactive rare gases for decay storage.

The two systems are a waste gas recombining system, which provides for the safe disposal of radioactive hydrogen gas used as a blanket on the primary coolant of the pressurized water reactor, and a sweep gas recombining system to dispose of radioactive hydrogen evolved from the plant's waste water.

In the waste gas system the hydrogen is accumulated in a storage receiver and, after a predetermined pressure is built up, it is fed into a recirculating nitrogen gas stream, which acts as a diluent. A precisely controlled volume of oxygen is added to combine with the hydrogen forming water vapor in the recombining unit. The condensed water, still radioactive, is then collected and stored for the necessary decay period.

The sweep gas system utilizes continuously recirculating air, which is monitored for its hydrogen content. As soon as the hydrogen has built up to a predetermined level, the recirculating air is diverted into a loop containing a recombiner which, again, catalytically reacts the hydrogen and oxygen to form water.

Collectors Filter Smoke, Save Heat



This closeup view of the smoke collection and filtering installation in the welding shop shows how the two collector units are suspended from the ceiling on steel frames.

Rid the air of offensive welding smoke, but retain the heat in that air.

The first part of this problem is not difficult to achieve, and is accomplished by most welding shops simply by the use of exhaust fans.

The second part is not difficult either, but neither is it being accomplished to any great extent—not even in northern sections of the country where heat loss can contribute greatly to wintertime expenses.

In the welding shop of a Minneapolis manufacturing plant, where 30 percent of the company's personnel work, both parts of this problem are being solved through an uncommon (to welding shops) use of dust collection equipment. Not only is the air being kept relatively free of the tiny particles and thick smoke stemming from the arc welding process, but the heat-laden air is being retained in the building at considerable savings in fuel consumption.

Like most metal fabricators, Rosco Manufacturing Co., a producer of black-top-road machinery, used exhaust fans to eliminate welding by-products from its shop. When the plant was enlarged and part of the welding operation moved to a neighboring building, a representative of a dust collector manufacturer suggested the trial application of dust collectors.

Installed over a year ago, the system was chosen principally as a means of retaining heat while purifying the air. The uncomplicated system in the Rosco plant employs three cabinet cloth-filter collectors and the usual link of six-inch piping. What is perhaps even more unusual about this installation is that the collectors are suspended from the 20-foot ceiling. In addition to the space saved by this positioning, the collectors inhale the warmest smoke-laden air, rob it of impurities and return it through piping to the floor where it helps to keep the concrete slab warm.

Basically each collector is a self-contained unit consisting of a compact steel cabinet, filters and a motor-driven fan which moves 1,200 cu. ft. of air per minute. Dust-laden air is drawn into the cabinet where particles fall into a dust tray or are trapped on outer sides of filters; filtered air is then drawn past the motor and exhausted.

A side benefit of the collection-purification system lies in temperature constancy—in adjacent areas as well as in the room where collectors are located. Installed in a 60 by 80-foot room, which is approximately one-third the area of the entire steam-heated building, the collectors merely recirculate the warm air at the same temperature. Unlike exhaust equipment, they do not rob air and heat from adjoining areas where fumes are not especially offensive. And unlike the vacuum creating fans, dust collectors do not promote heat loss through windows, doors and walls. At Rosco, where one entire side of the building is in glass doors, this could prove even more uneconomical.

In heavy industrial areas, where air pollution can prove annoying, dust collectors are particularly advantageous. They are also valuable in collecting especially toxic particles from such processes as brazing and bronze welding.

Depending on the volume of welding, the Rosco collectors are cleaned semi-monthly or weekly. One workman takes about two hours to brush the powdery accumulation from the 450 square feet of filters in the three machines. The mass of sticky, brown particles gathered in by the filters is in itself good indication of the collectors' efficiency. In fact, the particles are so adherent that the shaking mechanism of the collectors must be supplemented by manual brushing. Filters have not had to be replaced since the installation was made.

In the warm summer months, the collectors are turned off and the giant doors left open for natural circulation.

Pictures by courtesy of Torit Mfg. Co.

Nuclear Emergency!

The atomic energy industry has had a remarkable safety record in spite of, and also because of, the unusual hazards it has had to work with. How are emergency operations handled when a nuclear emergency does arise?

The following article is a recapitulation of the emergency measures used after the explosion at the National Reactor Testing Station in Idaho on January 3, 1961, as described by the U. S. Atomic Energy Commission.

First indication of trouble at the SL-1 (Stationary Low Power No. 1) reactor was an automatic alarm received at AEC Fire Stations and Security Headquarters at 9:01 p.m., MST, January 3, 1961. The alarm was immediately broadcast over all the testing station's radio networks. At the same time, the personnel radiation monitor at the Gas Cooled Reactor Experiment gate house, about one mile distant, alarmed and remained erratic for several minutes.

Response to Alarm

Upon the receipt of the alarm, which could have resulted from either excessive temperature or a pressure surge in the region above the reactor floor, the Central Facilities AEC Fire Department and AEC Security Forces responded. A Phillips Petroleum Company (operating contractor for some NRTS facilities) health physicist from the Materials Testing Reactor area was called at this time.

The fire engines and security forces arrived at the SL-1 site, about eight miles from the central facilities area, at approximately 9:10 p.m. Security patrolmen opened the gates in the site area fence and later the south door of the SL-1 administration building. Firemen equipped with self-contained breathing apparatus and radiation survey meters went through the administration building and the support facilities building in search of the operators and evidence of fire.

The initial penetration went as far as the entrance to the reactor building; however, unusually high radiation levels there caused the search party to withdraw pending health physics guidance. No fire or smoke nor any personnel were seen in the support facilities or administration building. The searchers did not enter the reactor building proper.

At 9:17 p.m. the Phillips health physicist arrived at the SL-1. He and a fireman, wearing breathing apparatus, made another trip through the administration and support facilities building and as far as the foot of the stairs to the operating floor of the reactor building, where they encountered a radiation level of 25 roentgens per hour, the limit of the survey meter they were using. They retreated from the reactor building and thoroughly searched the administration and support facilities building looking for the three military men believed to be on duty. They saw no one, nor any smoke or fire. During this search they encountered radiation fields of from 500 mr/hr to 10 r/hr.

By this time a radio check to other NRTS installations confirmed that the three SL-1 operators had not gone to any of them, so it was now presumed they must be in the reactor building.

At 9:35 p.m. two more Phillips health physicists arrived, already in protective clothing. One of them, with two firemen and with a 500 r/hr range survey meter, went up the stairs of the reactor building until a 200 r/hr radiation field was encountered. This group withdrew from the building to plan a course of action based on radiation levels noted. Then, with AEC approval, the other Phillips health physicist and an AEC fireman went to the top of the stairs and took a brief look at the reactor floor. Observed radiation levels of the order of 500 r/hr forced their quick withdrawal. They saw some evidence of damage but no bodies.

By 9:36 p.m. key personnel of AEC-Idaho Operations Office (IDO), Combustion Engineering Inc. (operating contractor for the SL-1) and Phillips Petroleum Company had been notified of the SL-1 accident. Following notification, many personnel who played key roles in the rescue efforts at SL-1 had to travel from Idaho Falls to the SL-1 site, a distance of 41 miles. At 10:25 p.m. IDO designation of a Class I disaster was broadcast over the NRTS radio networks.

When four Combustion Engineering personnel, including the SL-1 plant health physicist, arrived, they decided to enter the 500 r/hr field. The four Combustion Engineering men, having verified that the three military men on duty had not left the site, prepared to enter onto the reactor operating floor.

Rescue Operation

At approximately 10:35 p.m. the Combustion Engineering supervisors for plant operations and health physics, wearing breathing apparatus and carrying two 500-roentgen scale meters, entered the reactor operating floor for less than two minutes. They saw two men; one moving. They withdrew and returned with two more Combustion Engineering men and an AEC health physicist.

Two of the group picked up the man who was alive and put him on a stretcher at the head of the stairs. The other three of the group observed that the second man was apparently dead. The group got the stretcher down the stairs and out the west door within three minutes of entry, and put the stretcher in a panel truck. The man was taken in the panel truck to

-A Case History

meet the ambulance, transferred, and taken to the junction of Highway 20 and Fillmore Blvd. where the AEC doctor was met. When the doctor examined the casualty at 11:14 p.m. he pronounced him dead and the ambulance returned with the body to the SL-1 site pending a decision on the temporary disposition of the body.

At about 10:48 p.m. another group, made up of two military and two Phillips personnel, entered onto the reactor floor to locate the third man. They located him and determined that he was dead and did not attempt to remove him.

Decontamination of Rescuers

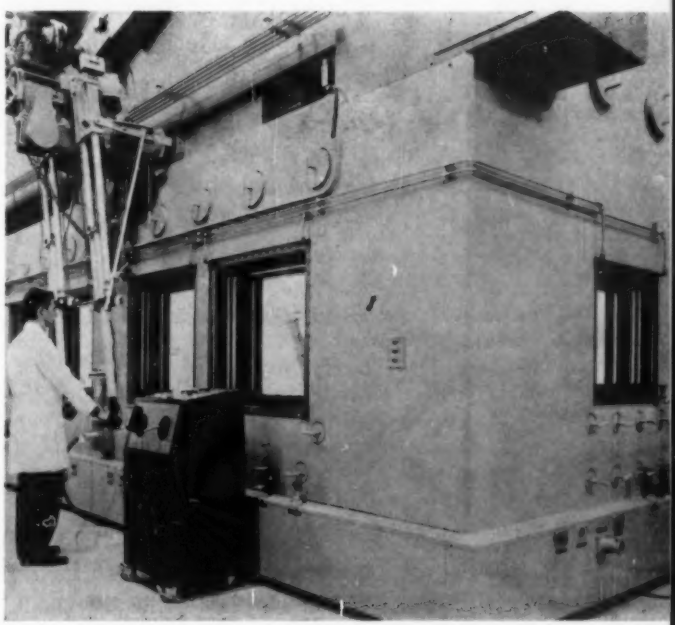
The recovery group underwent preliminary decontamination. Gamma exposures of the five-man group ranged from 23 to 27 roentgens. As the groups were returning from the decontamination operations, they stopped long enough to permit one military man, and one AEC health physicist to go through the support facilities building and close doors to lessen the chance of a fire starting and spreading in the disaster area; the two men did not enter the reactor building on this trip. When the two men returned to the rest of the group, it proceeded on to the decontamination trailer set up at Fillmore Blvd. and Route 20. From here the group split up with part going to the Central Facilities dispensary and the rest going to the Chemical Processing Plant for further decontamination.

Having concluded that the remaining two operators were dead, the AEC-IDO health physicist suspended rescue efforts and ordered all personnel back to the roadblock established on Fillmore Blvd. at Highway 20.

After the ambulance had been returned to SL-1 to await a decision on disposition of the body, personnel involved in the transfer of the body from the panel truck to the ambulance went to the Central Facilities dispensary for decontamination. Between midnight and 3:00 a.m. on January 4 approximately 30 people who had been engaged in the emergency at the SL-1 area were admitted to the dispensary for secondary decontamination. These personnel included firemen, security patrolmen, and military personnel. Preliminary badge readings and urine sample analyses for these 30 people were received around 3:30 a.m. and indicated that all personnel could be released. To assist in the above-mentioned decontamination processes, four Phillips Petroleum Company health physicists came to the dispensary.

Victim Decontamination

At approximately 6:00 a.m. on the morning of January 4 a team of five men removed the body from the ambulance located in the SL-1 area. The body was disrobed in order to remove as much contamination as possible at the site. The body was replaced in the ambulance, covered with lead aprons for shielding purposes, and transported to the Chemical Processing Plant where surface decontamination was attempted. Individuals involved in the disrobing and transfer process received a maximum exposure of 770 millirems gamma. Prior to decontamination the reading from the first body was approximately 400 r/hr at the head region, approximately 100 r/hr at the feet, and from 200 to 300 r/hr over the remainder of the body. First efforts to decontaminate the body resulted in no significant decrease in the readings.



Several Entries Made

Between 7:00 a.m. and 11:00 p.m. on January 4, the day following the incident, several entries into the reactor buildings were made. As a result of the entries, the second body was recovered, leaving one fatality to be recovered. Detailed events involved with removal of the second body are presented in a subsequent paragraph. A criticality dosimeter was recovered from just outside the door leading onto the reactor operating floor. Personnel history files were recovered from the Administrative Support Building. In addition, the reactor operating log book and all but one of the plant instrument charts were recovered from the Control Room Area.

During this same period investigation teams were organized by the AEC, Argonne National Laboratory and Combustion Engineering, Inc. Efforts continued on planning removal of the last victim and assessing the damage incurred. In addition to the normal continuous radiation monitoring stations which were operating at the time of the accident, radiological monitoring teams started intensive surveys of the adjacent areas and NRTS environs to evaluate any possible radiological hazard. No radiological hazard to the public has been indicated.

Recovery from High Radiation Area

At approximately 4:00 p.m. January 4, preparations began to recover the second body from the reactor operating floor. The body was located in an area where radiation levels were estimated to be approximately 750 r/hr.

A recovery team consisting of six military personnel and two AEC health physicists proceeded from the decontamination check point on Fillmore Blvd., after having been extensively briefed, rehearsed, and attired in protective clothing, to the entrance of the SL-1 compound at about 7:30 p.m. Of this group, two military men and two health physicists entered the support facilities building through the side entrance into the maintenance workshop area. A blanket was placed on the floor of the control room.

Because of the high radiation levels to be encountered, the maximum permissible working time on the reactor operating floor was limited to one minute. One health physicist was assigned to hold a stop watch and time the actual entrance to the reactor operating floor, signaling the two-man recovery team when their time was up. The other health physicist remained in the support facilities building to check the body for radiation after its removal from the reactor building.

Having been briefed as to the location of the body to be recovered, the two-man team entered the reactor operating floor and proceeded directly to the body. One man picked up the victim's legs while the other grasped the body around the shoulders and they moved rapidly out of the high radiation area and down the stairway. Their one minute limit in the reactor area did not expire until they were part way down the stairway. The two men continued down the stairs and placed the body on the blanket in the control room.

The second two-man team entered the support facilities building and went to the control room where they picked up the body by the four corners of the blanket and carried it out of the SL-1 compound. The work clothing was removed from the body, which was then placed in an ambulance standing by for the purpose at 8:08 p.m. The ambulance proceeded with the body to the Chemical Processing Plant where facilities had been prepared to receive it. The third two-man military team proceeded into the support facilities building and onto the reactor floor for the purpose of attempting to gain some more information about the status of the remaining body and the reactor.

The short periods of time that these recovery teams were in the high radiation areas on the reactor operating floor resulted in gamma exposures of from 1 rem (roentgen equivalent man) to about 13 rems.

On Thursday evening, January 5, an official photographer entered the radioactive reactor compartment to photograph the scene of the explosion. Radiation fields greater than 500 r/hr were reported by the accompanying health physicists. The photographer, wearing protective clothing and breathing apparatus, was allowed 30 seconds to complete his assignment. By entering the reactor compartment only long enough to trigger his camera and withdrawing to a less radioactive area to change film and make adjustments, the photographer was able to obtain the interior photograph needed. This photograph assisted AEC investigating teams in making plans to recover the third body and in evaluating damage to the reactor operating area. Maximum radiation exposure of these two men was less than two roentgens gamma of radiation.

The third body had been observed to be lodged in the ceiling above the reactor. Because of the high radiation fields (above 500 r/hr) personnel could not climb onto a beam to free the body which itself was highly contaminated with radioactive material.

The plan for removal of this third body was to position a large net (5′ x 20′) under it and attempt to lower the body onto the net. The net itself was fastened to the end of a crane boom. The large doors on the reactor building that are used for moving equipment in and out of the building were opened to permit the crane to position the net just below the body. A closed circuit TV camera had been placed in the reactor building to help position the net.

When the net was in position, teams of two men each were to move in quickly and try to lower the body onto the net. Because of the radiation fields, each team had less than a minute to make its attempt at freeing the body.

Due to a malfunction of the TV equipment, it was necessary to use the first team of men to check that the net was properly positioned; they accomplished their mission in less than their allotted time.

Four additional teams were used to accomplish the mission of freeing the body and lowering it into the net.

A sixth crew, outside of the building, was used to move the crane which held the net. The third body was removed from the building at 2:37 a.m. on January 9. The estimated doses received by the men entering the reactor building to free the body ranged from 2.5 to 7.5 rems.

Recovery operations were completed at 4:42 a.m., January 9.

Protection for Rescuers

Entry to the reactor building continued to be a hazardous undertaking. To protect individuals from contamination, a detailed procedure is observed prior to any entry. A detailed plan of action for each operation is established in order to obtain maximum benefit from the limited observation time of one to two minutes. AEC and Combustion Engineering health physicists personnel control the disaster field opera-

tions to ensure maximum safety for all participants. They determine who may enter, the radiation exposures to be tolerated, and equipment to be used.

The person assigned an entry mission and a health physicist are each dressed in two pairs of coveralls, shoe covers, and gloves. Around the wrists and ankles, tape is used to insure no skin remains exposed. Caps and respiratory protection equipment plus miscellaneous radiation detection equipment complete the outfitting of participants. Following exit from the contaminated area, clothing is removed and participants are decontaminated, if necessary, by scrubbing with soap and water.

Since radiation effects are cumulative, each entry by an individual brings him closer to prescribed maximum permissible limits. Exposures to personnel are kept as low as possible by strict time limitations and careful planning. To prevent multiple high exposures to individuals the missions are assigned to different personnel, thereby requiring a larger number of persons.

Toxic Gas Problems

The extraordinary precautions that are taken to protect operating personnel and the public in the manufacture of such toxic substances as nerve gas were outlined in three papers presented at an all-day session on toxic plant construction during the 53rd Annual Meeting of the American Institute of Chemical Engineers.

The papers stressed the necessity for preventing toxic fumes from the chemical processing areas escaping into other parts of the toxic plant or into the atmosphere before they have been decontaminated. One means of preventing escape of these fumes to the atmosphere is to maintain a flow of fresh air into the toxic plant and to decontaminate exhausts and waste disposal by means of caustics, heat and acids, it was pointed out. Ventilation of toxic plants presents a "terrific problem," it was said.

Simplicity of process design also was emphasized, as men working in toxic areas must wear heavy protective clothing, gloves and masks.

An important element in the design of a pilot toxic plant is the degree of toxicity of the material that is to be handled. This varies from the extremes of nerve gases, a few micrograms or gamma being lethal, to some incapacitating agents effective at 50–100 gamma.

The chemicals handled by the Chemical Corps are among the most toxic materials known to man. They are not available commercially but must be manufactured and packaged by the Corps. A lethal dose may be 25 milligrams per cubic meter and the threshold limit or maximum allowable concentration is about 0.008 milligrams per cubic meter for an eight hour work period. Some common chemicals are considered hazardous at 20 milligrams per cubic foot.

The Chemical Corps requirements for the design of its toxic chemical plants can and should be applicable to all chemical plants manufacturing toxic materials, it was reported.

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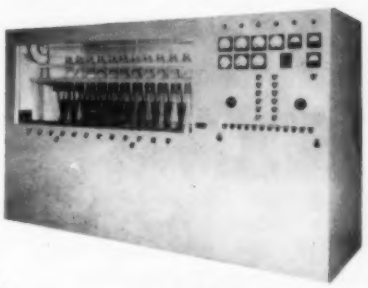

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(For details, use Key # C-11 on card on page 1)

Water-Supply Accidents Report

This report contains a detailed analysis of the occurrence of work injuries in water-supply utilities. Included in the report are analyses of: 1. Kinds of injuries experienced; 2. Sources of injuries; 3. Types of accidents; 4. Hazardous working conditions; and 5. Unsafe acts.

Also included are the descriptions of 55 typical work-accidents in water-supply utilities and suggestions for their prevention.

This report may be obtained free of charge by directing your request to the Bureau of Labor Statistics, U. S. Dept. of Labor, Washington 25, D. C.

Noise Measurement

An illustrated 100-page *Handbook of Noise Measurement* covering the measurement of noise and vibration, and describing equipment requirements, procedures and the interpretation of results, has been published by the General Radio Company.

Authored by A. P. G. Peterson and E. E. Gross of the General Radio engineering staff, the book contains a wealth of information based on years of specialized experience in acoustic measurements.

In thirteen chapters, this edition offers a comprehensive survey of such topics as the decibel, man as a noise-measuring instrument, applications of sound-measurement systems and the measurement of sound levels and sound-pressure levels. Also detailed are the characteristics of noise control, loudness levels, speech interference, hearing damage and neighborhood reaction to noise. In addition, typical noise sources are discussed, and vibration measurements are the subject of reports on typical instrumentation and applications.

Four appendices include decibel conversion tables, vibration charts, definitions and extensive references.

Copies of the handbook are available at $1.00 each postpaid, plus sales tax if applicable, from: General Radio Co., West Concord, Mass.

Handling Injuries

From the caveman's crude wedge to the modern bucket conveyor, traveling crane and lift fork truck, materials handling has always been an important source of injury to workers, says a safety bulletin—"Mechanical Handling of Materials"—issued by the U. S. Department of Labor.

Modern mechanical handling of materials, while decreasing the dangers of manual handling, has created some hazards of its own, the publication states. Despite increased mechanization, almost 25 percent of all disabling injuries in industry still occur in materials handling operations, the report says. It notes, however, that "mechanical factors are more subject to control than are human factors involved in handling materials by hand."

The pamphlet defines and illustrates many types of conveyors: derricks, cranes and hoists; powered industrial trucks; and ropes, cables and chains. The importance of, and standards for designing safety into the manufacture of such equipment are discussed. Rules for safe operation of the various types of equipment as well as hand or whistle signals are given and where necessary accompanied by instructional drawings. Tables for safe working loads on ropes and cables based on the recently adopted Federal safety code for ship repairing are included.

Sample copies of Bulletin No. 219, "Mechanical Handling of Materials," one of the Department's safety-in-industry series, may be obtained so long as the supply lasts, from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C.

New Handbook on Casualty Insurance

Today's casualty insurance business, totaling $9 billion annually in premium volume, is written by about 3,500 companies with assets of more than $28 billion, according to the Casualty Insurance Handbook made public recently. Prepared and published by the Insurance Information Institute in cooperation with the Association of Casualty and Surety Companies, the new publication is designed to supply industrywide facts and figures on casualty insurance for writers, speakers, teachers, researchers, business people and others who may be interested in using such information.

The handbook traces the development of the casualty insurance business from its beginnings in 1864 and defines the various types of casualty coverages.

While casualty insurance touches almost all aspects of modern living, the new handbook divides it into three main groups covering losses from the following misfortunes: (1) injuries to another for which the insured is responsible; (2) damage or loss to the property of the insured; and (3) injury or illness of the insured himself. Within each of these fields there are many different types of protection. While fidelity and surety bonds are not, strictly speak-

ing, casualty insurance, they are closely allied and are generally considered as belonging in the same branch of protection. Copies of the Casualty Insurance Handbook may be obtained from Insurance Information Institute, 60 John St., New York 38, N. Y.

Changes in Workmen's Compensation Laws

The Chamber of Commerce of the United States has published a list of changes made last year in workmen's compensation laws in ten states.

The changes will be described in a special supplement to the Chamber's 1960 "Analysis of Workmen's Compensation Laws." Persons who have purchased the Analysis will automatically be sent supplements free. Persons who have not bought the Analysis can get it and the supplement by sending $1 to the Insurance Department, Chamber of Commerce of the United States, 1615 H St. N. W., Washington, D. C.

The ten state legislatures that changed workmen's compensation laws are: Alaska, Kentucky, Maryland, Massachusetts, Michigan, Mississippi, Nevada, New York, Rhode Island, and Virginia.

These laws set forth employer obligations to provide against injury and illness to employees. They also provide penalties. Some states jail employers for ignoring workmen's compensation laws; other states put employers out of business; most states fine employers. The laws vary.

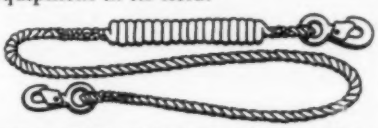
The National Chamber's 57-page Analysis helps employers learn how to conform to their state's workmen's compensation laws. From the booklet employers can learn such things as: what they must report when employees are injured, their options in buying workmen's compensation insurance, and the maximum and minimum benefits paid employees.

The Analysis covers state and federal laws in the U. S. and Canadian provincial laws.

DON'T find out by accident

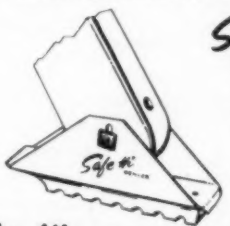
In safety equipment, second best just won't do!

Get the *facts* on the safety equipment you need. For 29 years, the Rose Manufacturing Company has been designing, testing, and manufacturing the finest safety equipment in its field.



Safe-Hi UNOLYN COIL SHOCK ABSORBER AND LANYARD

The Safe-Hi Unolyn Shock Absorber and Lanyard are safe two ways! A 50-inch length of Nylon Lanyard is coiled around a 10-inch length of Unolyn. After the Unolyn has stopped the fall and absorbed the shock, the Nylon lanyard retains full strength and safety. Unolyn s-t-r-e-t-c-h-e-s to 5 times its own length—one pound of Unolyn absorbs up to 25,000 foot-pounds of kinetic energy—to guard against broken ropes, anchors, belts and broken men due to impact in stopping falls!



Safe-Hi LADDER SHOES

Safe-Hi Ladder Shoes hold on all surfaces because they combine fibre and neoprene in the tread. This combination holds any ladder safely on wet, dry or slippery surface. The self-sharpening steel spike flips down for ice or snow.

Listed by Underwriters Laboratories for all surfaces. Also available in spark-resistant metals.

Safe-Hi CHEST-WAIST BELT

The Safe-Hi "Chest-Waist" belt is the *safest* belt made for workmen in high places, because it *divides* the shock load to two separate areas of the body—the chest and the waist. It also assures proper adjustment; the shoulder-supported chest belt can be worn loose for comfort, but the un-supported waist belt must be *worn* snug, thus preventing the fatal "slip-out" accident in a fall.

Other Safe-Hi Safety Belts include Car Dropper's Belt, Grab Belt, Heavy-Duty Construction Worker's Belt and Window Cleaner Belt.

Safe-Hi AUTO SEAT BELT

The "all nylon" Safe-Hi Auto Seat Belt has been safety-engineered to reduce crippling injuries and deaths resulting from highway accidents. The entire belt assembly, including the floor hardware, test far beyond C.A.A. rated strength for airplane seat belts! The 2-inch-wide webbing is 100% nylon, shock-absorbing, very long wearing and easily kept clean. It is light and comfortable to wear, and can be instantly adjusted or released. The Safe-Hi Auto Seat Belt will fit any person, any seat and any car or truck.

OTHER SAFE-HI PRODUCTS

Other Safe-Hi Products include the Safe-Hi Ladder Climber, Chisel Grip, Rope Grab Shock Absorber, Ladder Lash Pole Grip, Wall Grip and Adjustable Bo'suns Swing.

You're sure you've got the best with **Safe-Hi**

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(For details, use Key # C-12 on card on page 1)

Safety Equipment
(from page 23)

concentration is too high, that the canister is exhausted, or that the mask is not properly fitted.

NOTE: Where carbon monoxide or other gas having little or no odor may be encountered in addition to formaldehyde, the mask should be equipped with an "all purpose canister" and a "timing device" as approved by the U. S. Bureau of Mines.

(e) **Chemical Cartridge Respirators** may be used to avoid inhaling disagreeable but relatively harmless concentrations of formaldehyde vapor. These respirators, however, are not recommended for protection where toxic quantities may be encountered.

Caution: Filter type respirators do not offer protection against gases and are unsuitable for use when working with formaldehyde.

Head Protection

"Hard" hats should be worn where there is danger from falling objects. If hard hats are not considered necessary, soft-brimmed hats or caps may be worn to give protection against liquid leaks and splashes.

Foot Protection

Leather or rubber safety shoes with built-in steel toe caps are recommended for workers handling drums and cans of formaldehyde. Rubbers may be worn over leather safety shoes. Rubbers and shoes should be thoroughly cleaned and ventilated after contamination.

Body, Skin and Hand Protection

Sustained or intermittent skin contact with liquid formaldehyde may produce dermatitis at the site of contact. It is imperative that contaminated clothing be removed promptly and laundered or thoroughly dried before re-use. Affected areas of the body should be washed thoroughly with soap and water. Eyes should be washed with water. As a general hygienic measure, facilities for personal cleanliness should be provided and washing before lunch and at the end of the work day should be encouraged.

Clothing made of rubber or other impervious material may be worn to protect the body against formaldehyde splashes. These garments must be cleaned inside and out each time they are used.

Fire Fighting

Fire fighters should wear normal protective equipment, waterproof coats, boots, goggles, and helmet. When fighting indoor fires, self-contained breathing apparatus is necessary. Outdoors this apparatus should be available and worn if needed.

Use of copious amounts of water is recommended. Dry chemical, carbon dioxide and foam extinguishers approved for use with alcohols, etc., may also be used.

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Chemical Hazards
(from page 16)

Manual handling of equipment accounted for 53 percent of the disabling injuries; exposure to the nerve gas accounted for 13 percent, and majority of the remainder were caused by slips and falls.

The six-story plant, completely enclosed by concrete, was designed with alarm equipment that sounded when the air became contaminated with one part gas to 100 million parts of air. It was an idea "which sounds good" but failed to work out in actual operation, he said. Frequent alarms, tied in with administrative offices, "continually kept the plant personnel answering questions about the cause of the alarms and prevented them from locating the leak."

Mr. Kenney observed that "by considering safety," plants can be built to "handle extremely toxic items without undue hazard to personnel," and that commercial engineering firms "do an excellent job in protecting employees from the feared hazard." He said that "injuries in a toxic chemical plant will continue to be those expected in any industrial concern, but stressed the importance of plant layouts that provide adequate room for maintenance and good lighting where personnel are handicapped by wearing protective rubber suits.

Every effort in toxic plant design "has to be made to keep operators away from toxic areas," he said. "Remote sampling or automatic analysis should be given serious consideration to keep personnel away from possible contact with the agent."

Sanitation Institute Opens Headquarters

The Institute of Sanitation Management has opened a new national headquarters office at 55 West 42nd Street, New York City. The Institute also begins its new and expanded operation in 1961 with two new classes of membership and a new slate of officers. At its annual meeting in Detroit during October, the ISM Board of Directors authorized the creation of "Local Sustaining Membership" and "Associate Membership" categories. The Local Sustaining category is designed for small manufacturers and distributors operating in only one city, for which the dues, $50, is half that paid by National Sustaining Members. The Associate Membership category was created for corporations and agencies not engaged in the sale of sanitation products or services desiring to support the Institute in its work. Both memberships require the approval of the membership of the enabling Constitutional Amendments.

The new officers who formally took control of the Institute during its annual meeting were:

President—Raymond Q. Duke, Operations Supervisor, Detroit Edison Company, Detroit, Michigan.

President-Elect—Edward Hupert, Manager, Management Methods Unit, Buildings Management Branch, U. S. Post Office Department, Washington, D. C.

Vice President—George B. Wagner, Director, Economic Biology Department, The Pillsbury Company, Minneapolis, Minn.

Treasuer—John Powell, Powell Magazines, Inc., New York, N. Y.

Gerald J. Riley continues as Executive Secretary, a non-elective position.

Plans for the formation of new local chapters and further development of existing groups were also made during the ISM meeting.

THE FIRE FRONT

Fire Loss Table

Month	1960	1959	1958
January	$ 92,949,000	$ 112,983,000	$ 99,918,000
February	96,782,000	98,120,000	103,853,000
March	116,365,000	99,610,000	102,722,000
April	98,106,000	90,689,000	99,061,000
May	86,940,000	81,597,000	85,633,000
June	82,829,000	77,867,000	90,048,000
July	82,998,000	82,334,000	80,782,000
August	90,037,000	74,660,000	75,491,000
September	81,845,000	83,027,000	73,303,000
October	92,730,000	71,160,000	73,393,000
November	84,340,000	78,582,000	71,539,000
December	101,903,000	96,444,000	100,523,000
TOTAL	$1,107,824,000	$1,047,073,000	$1,056,266,000

Fire Losses for 1960 Highest in History

Estimated fire losses in the United States last year rose to $1,107,824,000, the highest dollar amount of loss in the nation's history, the National Board of Fire Underwriters reported. The 1960 total was 5.8 percent above the $1,047,073,000 for 1959, and 4.9 percent higher than the $1,056,266,000 for 1958. It was the fourth year in a row that fire losses exceeded the billion dollar mark.

The record fire loss total for the last few years in part was due to the greater volume of construction in place, and in part to the rise in the value of both new and existing buildings as a result of the inflationary trend.

Steady Decrease

The National Board pointed out that, over the years, the loss of property which burns each year in relation to total quantity of goods subject to burning has continued progressively to edge lower.

"Even though 1960 fire losses, as measured by dollars, reached an all-time high, we feel we are winning our battle against fire," said Lewis A. Vincent, general manager of the National Board.

"It is not, however, a fight in which we can afford to become complacent."

Need of Vigilance

"The headlines in our newspapers, almost daily telling of fatal fires in private homes and costly fires in business establishments, point up the need for never ceasing vigilance."

For the month of December, 1960, fire losses totaled $101,903,000, an increase of 20.8 percent over the $84,340,000 for November, 1960, and an increase of 5.7 percent over the $96,444,000 for December, 1959.

The National Board fire losses are based on monthly reports from member companies. These reported losses are adjusted to reflect the uninsured and unreported losses.

Chamber of Commerce Fire Contest

The Chamber of Commerce of the United States is sponsoring its 38th annual National Inter-Chamber Fire Safety Contest for local chambers of commerce throughout the United States.

Purpose is to help build community support for the fire prevention and fire safety efforts of local fire departments and to recognize the local chambers that are outstandingly successful in promoting community interest and action in fire safety.

To date, several hundred chambers are participating in the contest. They are submitting records and scrapbooks on fire prevention and safety activities in 1960 in their communities.

For information to help local chambers enter the contest, write: Insurance Department, Chamber of Commerce of the United States, Washington 6, D. C.

Fire Conference

The 8th Annual Industrial Fire Control Conference will be held at Purdue University on April 4, 5, 6, 1961. This annual conference is planned to assist in the development of a more effective fire safety program for industry. This meeting is largely attended by plant fire specialists and industrial safety personnel.

This conference will feature outstanding industrial fire control authorities, lecturers and moderators. The fine array of speakers will explore the many facets of industrial fire prevention and fire protection. The course of instruction will provide the basic techniques and methods of industrial fire fight-

ing and fire prevention. It will consider the essential fire problems that confront both the small and large industrial plants.

This training course in industrial fire control is intended to help administrative and supervisory industrial personnel to deal more efficiently with their fire control problems and to reduce industrial fire loss through training. The program itself is planned to lend assistance to the experienced safety supervisor and also to provide training for new personnel.

The program will include selected guest lecturers who are nationally recognized as experts and university personnel specializing in fire control, fighting and prevention. The conference plan is to include group participation and panel type discussions of various industrial fire problems.

One of the highlights of the program is a planned field trip to industrial plants which will be scheduled in order to observe firsthand the methods and procedures of industrial fire protection.

An announcement is available which will provide general information on the coming conference. Under the heading of program topics are the specific fire problem areas that will be discussed in detail.

For additional information concerning the seminar please address: Professor Shelby Gallien, Seminar Director, Public Safety Institute, Purdue University, West Lafayette, Ind.

Fire School Schedule

Nine sessions of Ansul Chemical Company's 1961 Fire School are now open for enrollment, according to Fire School Director Frank L. Hruska. The three-day sessions are scheduled from May 22 to September 18, giving the widest possible choice of dates.

Employees of Ansul customers are eligible to attend the school free of charge. Sessions are held on the company's five-acre training ground at Marinette, Wisconsin. Most of each session is taken up with actual fire-fighting, starting with small gasoline pan fires and working up to large flammable liquid pressure fires and an 800 square foot oil pit fire. Advanced fire-fighting techniques are taught, using all types of Ansul fire equipment.

Classes at each session of the school are limited to 25 men because this is the maximum number which can be trained effectively. Registrations for all sessions are accepted on a "first come" basis. Those who would like to enroll should contact their nearest Ansul representative.

Starting dates for the nine sessions of Ansul's 1961 Fire School are as follows: May 22, June 5, June 12, July 24, August 7, August 14, August 28, September 11, and September 18.

1960 Fire Deaths

Fire deaths in this country during 1960 reached an approximate total of 11,350, the National Fire Protection Association reports.

Another 70,000 persons were seriously injured by fire in the past 12 months.

Destruction of property by fire totaled a record high of approximately $1,541,000,000.

According to these preliminary estimates released by the international fire safety organization, the U. S. fire death record in 1960 shows a fractional increase—about 50—over the previous year's total. Property losses, however, are up sharply—more than $100,000,000—in comparison with the 1959 total.

While final 1960 figures will not be available for some months, NFPA said that approximately half the fire deaths—more than 5,600—occurred in homes, and about 30 percent of the casualties were children. In at least 76 instances, families were virtually wiped out when four or more members were killed in a single dwelling fire.

The 1960 property loss estimate of $1,541,000,000 marks the first time this figure has reached or crossed the billion and a half mark. Included in the total are $1,145,000,000 worth of buildings and contents destroyed by fire. The balance of $396,000,000 covers aircraft, motor vehicle, forest and other non-building fires.

The December fire aboard the U.S.S. Constellation was 1960's largest single loss in both lives and property. 50 deaths have been reported, with others still listed in critical condition. Preliminary estimates indicate the property damage total may reach or exceed $75,000,000.

Only twice before in U. S. history, according to NFPA records, has this figure been exceeded in a single fire: in the Chicago fire of 1871 when damage was assessed at $168,000,000, and the 1906 San Francisco earthquake and fire for which the loss was set at an estimated $350,000,000. The Boston conflagration of 1872, at $75,000,000, equalled the Constellation loss.

Fire following an aircraft crash took 22 lives at the Toledo, Ohio, airport on October 29, and 18 miners died when trapped by a coal mine fire on March 8 near Logan, West Virginia.

The second largest property loss occurred at Walker Air Force Base, New Mexico, on February 3 when during take-off a KC-135 tanker plane crashed and burned along with two other tankers and a hangar. Damage totaled $21,409,600, and nine lives were lost.

Largest single loss in building fires during 1960 was the $8,000,000 destruction of a manufacturing plant in Clifton, N. J., on February 17.

Fire Contest Winners

Martinsville, Virginia, and Hamilton, Ontario, have been named the 1960 grand award winning cities in the National Fire Protection Association's annual Fire Prevention Contest.

The awards, for which nearly 1800 entrants from the United States and Canada competed, are based on year-round efforts to reduce fires and to educate people in fire safety in the home and on the job.

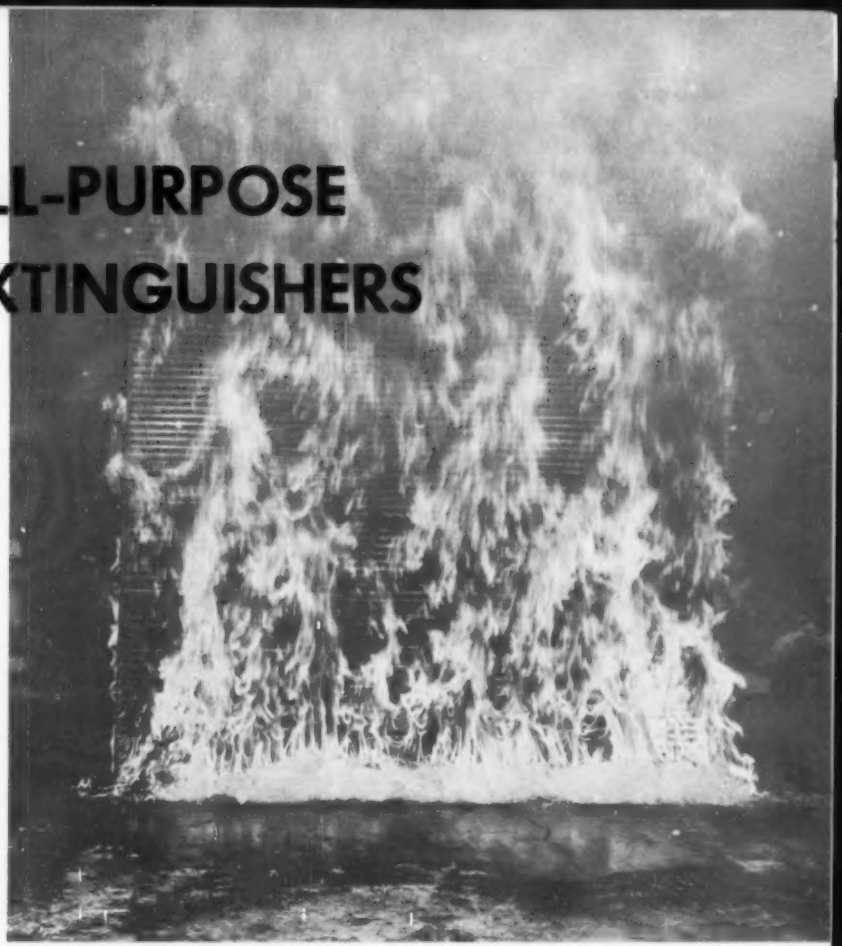
The contest, now in its 34th year, is sponsored by the National Fire Protection Association, non-profit international educational and engineering organization devoted exclusively to reducing the toll of lives and property taken by fire.

There were six additional grand award winners in other divisions in the contest:

(Continued on page 42)

THE ALL-PURPOSE FIRE EXTINGUISHERS

by G. E. MANNING
Chief Engineer
Underwriters' Laboratories, Inc.
Chicago, Illinois



Above is a Class A fire test of a 10 by 10 foot panel during pre-burn stage.

For many years, the Fire Extinguisher Industry has been trying to develop an extinguishing agent which would be suitable for all of the common types of fires; that is, fires in ordinary combustible materials such as wood and paper (Class A), those in flammable liquids (Class B), and fires in electrical equipment (Class C). In recent years, efforts have been intensified in the field of dry chemical, which seemed to hold the greatest promise as a so-called all-purpose extinguishing agent.

Dry chemical extinguishers have long been recognized for use on Class B and Class C fires. In regard to this type of extinguisher, NFPA Pamphlet No. 10 states: "Dry chemical extinguishers are not effective on deep-seated fires in ordinary combustible materials such as wood, paper, textile, rubbish, etc. (Class A fires) which require the quenching and cooling effect of water for complete extinguishment, but they may be of value for surface fires in small quantities of such material where the smothering effect of the extinguishing agent may be utilized."

Effectiveness Questioned

The extinguishment of Class A fires has been associated with water and water solutions for so long that one instinctively questions the effectiveness of a powder on such fires. Although water is recognized as an extinguishing agent capable of penetrating and cooling deep-seated fires, it is a fact that the extinguishing potential is a function of the available quantity of the agent; and, in the case of portable hand extinguishers, it must be remembered that rather limited quantities of water are available—1¼, 2½ or, at the most, 5 gallons. Furthermore, the effectiveness of water for so-called deep-seated fires is reduced by the water or water solution that is wasted in run-off.

At this point, it might be of interest to describe, briefly, the tests used to determine the suitability of an extinguisher for use on Class A fires. In our work at the Laboratories, we have relied primarily on the standard vertical wood panel test for this purpose. The panel, of kiln-dried lumber, is made on a square backing of 1 by 6-in. yellow pine tongue and groove flooring, to which is fastened the lighter material which provides the principal source of fuel for the fire. This lighter material consists of two layers of 1-in. by 1-in. furring strips (of kiln-dried Douglas Fir) spaced approximately ¾ in. apart. The two layers are separated by similar furring strips spaced 2 ft. apart.

For the 2A classification (the maximum rating for 2½-gal. water or soda-acid extinguishers), a 10-ft. by 10-ft. panel is sprayed with 2 gal. of No. 2 fuel oil, and placed in a vertical position with the two layers of furring strips horizontal. A row, consisting of 5 lb. of bass-wood excelsior, is placed against the base of the panel and ignited by a gasoline fuse. At periodic intervals of 45 sec., 3 similar rows of excelsior are moved up against the base. The result is a vigorously burning panel which is permitted a pre-burn sufficiently so that the lower furring strips are about ready to collapse, at which time the fire is attacked.

Supplementary Tests

The vertical panel fire test is supplemented by tests using bass-wood excelsior as fuel. For the 2A classification, this test is conducted by spreading 12 lb. of seasoned bass-wood excelsior over a 4-ft. by 8-ft. area, to a depth of approximately 12 in. Gasoline is poured along one edge and ignited. When the flames

have progressed to the point where approximately half of the excelsior is burning, the fire is attacked.

To return to the consideration of dry chemical for use on Class A fires. It was known that experiments and tests with a comparatively new type of dry chemical, obtained from Germany, indicated that it possessed extinguishing effectiveness on Class A fires beyond that of the ordinary sodium bicarbonate base dry chemicals. However, one such chemical, which was suitable for Class A fires, did not perform as well on Class B fires. There were other problems involved, not the least of which was the lack of resistance to caking under moist conditions.

Extinguishers Classified

Underwriters' Laboratories has completed investigations and has promulgated listings of dry chemical extinguishers in the 15 and 25-lb. sizes for use on Class A, B, and C fires. The 15-lb. extinguisher has been classified 1A, 16B:C, and the 25-lb. size 2A, 20B:C. Incidentally, these extinguishers were also found to be effective on magnesium fires.

The non-caking and moisture repellant characteristics of the new dry chemicals were judged under the specifications in the present Standard of Underwriters' Laboratories, Inc. for Dry Chemical Hand Fire Extinguishers and found to be acceptable. There appears to be no necessity for any change in requirements for these properties.

Class B Effectiveness

It is still too early to determine the effectiveness of the new dry chemicals compared with presently listed sodium bicarbonate base dry chemical extinguishers on Class B fires. There are certain features about the new dry chemical which probably will stimulate design changes in the extinguisher as greater experience is gained. As an example, the new chemical, being lighter in density, may require a larger cylinder for the proper quantity of expellant gas. However, with the same initiative and energy which has brought the sodium bicarbonate base dry chemical extinguishers to their present level of efficiency and effectiveness, I believe we can expect significant developments in these new dry chemicals.

From an address presented at the 1960 Annual Meeting of the National Fire Protection Association. Picture by courtesy of Underwriters' Laboratories, Inc.

Fire Contest Winners

(from page 40)

Industry—Guide Lamp Division, General Motors Corp., Anderson, Ind.

Government—Veterans Administration Center, Los Angeles, Cal.

U. S. Army—Fort Lewis, Washington

U. S. Navy—Marine Corps Recruit Depot, Parris Island, S. C.

U. S. Air Force—Ramey Air Force Base, Puerto Rico

Department of National Defence, Canada—RCAF Station Uplands, Ontario

A number of other cities, industrial firms, government agencies and military units were singled out for other awards in the contest.

The purpose of the contest is to stimulate universal fire safety consciousness and to encourage broader use of modern techniques in both public and private fire prevention.

A six-man international board of judges chose the winning entries for the 1960 contest. They were: A. Leslie Ham, Chief Counsel, Canadian Underwriters' Association, Montreal, P. Q.; Cyril S. Hart, President, Boston Insurance Company, Boston, Mass.; John H. Redmond, Vice-President and Manager of Operations, Tar Products Division, Koppers Co., Pittsburgh, Pa.; Wilbur E. Smith, American Municipal Association, Washington, D. C.; R. A. W. Switzer, Dominion Fire Commissioner, Ottawa, Ont.; and William J. Taylor, President, International Association of Fire Chiefs, Burbank, California.

National Fire Codes

A new and revised edition of the National Fire Codes has been published by the National Fire Protection Association. The 1960–61 issue of this authoritative reference work incorporates important changes in many fire safety standards, according to Robert S. Moulton, technical secretary of the Association.

The 7-volume 1960-61 edition is a compilation of the 181 standards developed by NFPA in the fields of flammable liquids and gases, combustible solids, dusts, chemicals and explosives; building construction and equipment; extinguishing equipment; electrical installations; and mobile fire equipment, transportation and management.

New material includes 42 new or revised fire safety standards adopted at the 1960 annual meeting of the Association, and incorporates all amendments approved by the NFPA Board of Directors up to and including July 30, 1960.

The seven new volumes, with a total of 5614 pages, by title and content are:

Volume I—Flammable Liquids and Gases (1108 pages, 33 standards, including properties of flammable liquids, a flash point index of trade name liquids, and model ordinances)

Volume II—Combustible Solids, Dusts, Chemicals and Explosives (816 pages, 37 standards, including a table of hazardous chemicals, model state fireworks law, and fire protection practices for nuclear reactors)

Volume III—Building Construction and Equipment (832 pages, 34 standards plus an informative discussion of building codes and references to model codes)

Volume IV—Fixed Extinguishing Equipment (784 pages, 18 standards, including sprinkler and other types of extinguishing systems, fire pumps and water systems)

Volume V—Electrical (800 pages, 8 standards, including the current National Electrical Code, alarm and signaling systems, static electricity and lightning protection)

Volume VI—Transportation (682 pages, 27 standards on air, marine, bus, truck and trailer operations, plus a comprehensive review of government regulations)

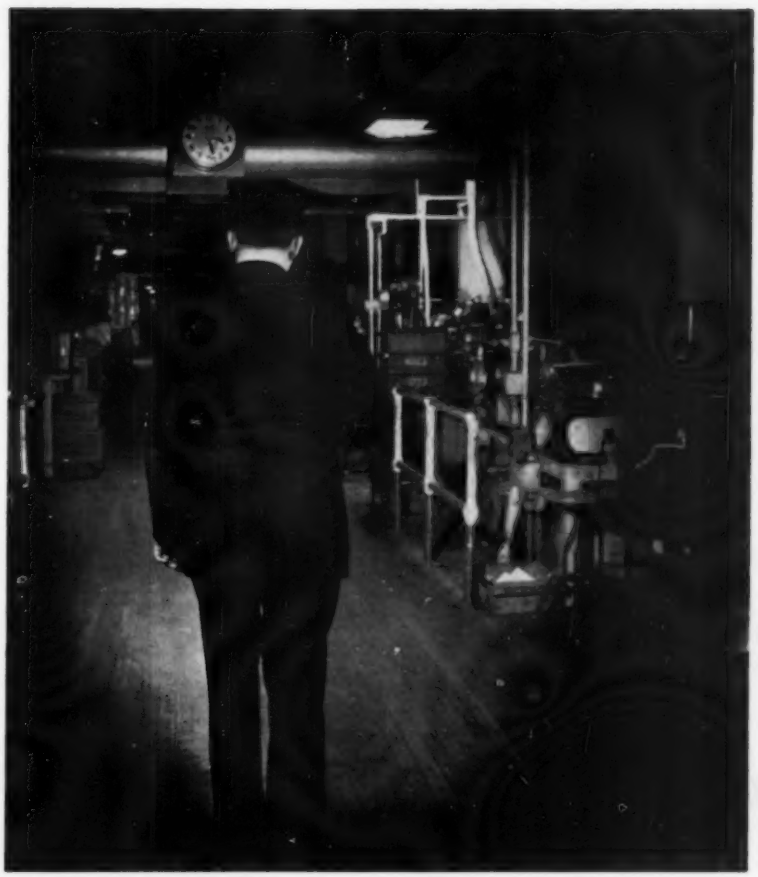
Volume VII—Mobile Fire Equipment, Organization and Management (592 pages, 24 standards, including portable fire extinguishers, fire department equipment and organization, salvaging operations, private fire brigades and a fire

(Continued on page 44)

SECURITY GUARD– OR CLOCK WATCHER?

Although one of the duties of a security watchman is to ring the clock stations on his rounds, that is not his primary function. On this point all plant management will agree.

They'll probably disagree considerably, though, on just what the uniformed security guard should be doing and looking for on his tour of duty. The truth is that most plant security watches are performing only a fraction of their functions, according to Pinkerton's National Detective Agency, which handles thousands of security installations for business and industry.



Reason for Tour

The reason for the tour of clock stations over a prescribed route is, of course, to enable the guard to observe conditions and protect plant property, and possibly lives, by taking him on a complete tour of the premises.

But the clock he carries and the station keys that record his visits are proof only that he has traversed the route. It is in the matter of intelligent observation in a guard's performance of his rounds that many plant security watches fall down.

Check List For Guard

Here is a list of 19 things this professional security service trains its guards to look for on every round—especially on the all-important first tour of duty. In watching for these various conditions, the modern-day "watchman" actually serves as a combination after-hours firewatch, policeman, detective, maintenance man and general housekeeper.

- **opened windows**
- **unlocked doors and gates**
- **unnecessary lights**
- **electrical equipment or appliances left operating**
- **leaks of steam, water, oil, etc.**
- **blocked aisles**
- **blocked fire extinguishers, hose, etc.**
- **blocked fire doors**
- **evidence of any equipment running hot or overheating**
- **company products, equipment or material apparently hidden or set aside under suspicious circumstances**
- **evidence of illegal entry or trespass**
- **uncovered containers of solvents**
- **oily rags**
- **evidence of smoking in non-smoking areas**
- **roof leaks**
- **unusual sounds**
- **closed sprinkler valves**
- **unusual odors**
- **any unsafe condition**

Picture by courtesy of Western Electric Co.

National Fire Codes
(from page 42)

safety guide for industrial establishments)

The NFPA standards and codes, in keeping with the traditional objectives of the 64-year-old Association, are drawn as recommendations for safety to life and property from fire without causing unnecessary inconvenience or expense.

Purely advisory as far as the Association is concerned, they are widely used in the United States, Canada and abroad as the basis for governmental regulations and as the guide for good practice in industry and commerce.

Many NFPA standards are subsequently adopted and published as the official standards of the National Board of Fire Underwriters, the Canadian Underwriters Association and other organizations.

More than 100 NFPA technical committees composed of experts representing industry, trade and professional associations, government, insurance and the general public prepare and regularly review and revise NFPA fire safety standards.

The National Fire Codes ($7 per volume, $40 for the set of 7 volumes) are available from the Publications Department, National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Glove Distributors Society to Expand

A campaign to expand membership has been launched by the National Association of Industrial Glove Distributors with the mailing of invitations to prospective members, nationwide. The NAIGD was organized in April 1959 to further the interests of distributors of work gloves to industry and to promote the use of proper gloves by industrial workers.

In the interests of both buyers and sellers, the Association has initiated a program designed to eliminate confusion in the trade. This will be achieved by developing recommended standards and a method of coding so that the buyer will know that gloves are made of materials as represented and as requested on purchase specifications. A Committee already is at work to develop the proposed standards and coding system for Canton flannel cloth and gloves. This will be followed by a program to develop standards on other types of gloves. The possibility of developing recommendations on simplification of styles also will be explored.

". . . Charlie was one of our best hands!"

An Association insignia has been approved, and gummed label reproductions will be made available to all members.

There are two membership classes. Regular membership is open to all persons, firms, corporations and partnerships engaged in the business of distributing work gloves from its own warehouse to industrial consumers, including distributors and/or dealers whose sales of industrial gloves are only a small portion of their total business. Associate membership is open to manufacturers of industrial work gloves and to any organization, company or individual who has a legitimate interest in the industrial work glove industry.

A larger membership, truly representative of the work glove distributing industry nationwide, is a major goal of the Association. Such larger membership will enable the Association to form regional sections, headed by regional vice-presidents. This, in turn, will make it possible to better serve the interests of distributors in different regions.

Dues of all members are $100.00 annually. The Association urges all those eligible to cooperate with it in building a strong organization to become members. Requests for applications should be sent to: Penn Affiliates, Inc., Executive Director, 11 West 42nd St., New York 36, N. Y.

"Buddy" System For Hazardous Work

Team work, combined with the "buddy" system, is an essential ingredient in operation of a plant studying lethal chemicals for war. In certain critical operations the team consists of at least four persons, the operator, the observer, the engineer and a safety man who is outside the danger zone but who knows what is going on and what to do if something goes wrong.

This system was explained to the American Institute of Chemical Engineers by Sigmund R. Eckhaus, of the U. S. Army Chemical Research & Development Laboratories, Army Chemical Center, Maryland, in a paper, "Toxic Pre-Pilot Plant Processing," presented during a symposium on toxic plant construction.

What kind of people should be selected for work in such a plant? "The personnel . . . should normally be above average. To fit into the ever-changing pilot plant with its start-up troubles, necessity for constant attention and recording of much data, the personnel must be highly skilled and possess some outstanding characteristics. Besides intelligence and initiative . . . resourcefulness, cheerfulness and the capacity to work closely as a team are extremely important. Team work is even more essential where toxic materials are concerned. Working closely with a 'buddy' to act as an observer and to help out in an emergency is the heart of safe toxic operations. Here cheerfulness is a must; the morale of the group must be high, even in the face of the normal activities that beset a development study. . ."

Mr. Eckhaus observed that most commercial firms are reluctant to handle toxic material until the development of safety procedures has been completed by the Army. "This results in the early development of 95% of the toxic agents by the Chemical Corps within our own laboratories."

Safety In Toxic Chemical Plants

To err may be human, but in the case of employees in chemical or biological warfare plants, it can be deadly as well. According to a report delivered to the American Institute of Chemical Engineers at their 53rd Annual Meeting, small errors in following out safety instructions can easily prove fatal. The report entitled, "Engineering Safety in the Design of Toxic Filling Plants," was written by Wilson B. Keene (deceased) and M. G. Ringenberg, U. S. Army Chemical Research and Development Laboratories Army Chemical Center, Maryland.

Deviations from safety procedures, "whether they be from a design or personnel operator's error, are the prime causes of injury to personnel." An example of a near-fatality cited was when a pipe-fitter who was working in a complete rubber suit "felt liquid run up his arm and immediately started to come out of the hot area. By the time he had taken his caustic shower and gotten out of the rubber suit he was unable to stand and the doctor who was on duty at the time stated that in another ten minutes he would have had his first fatality. He was given artificial respiration, atropine injection, etc., and came out of it all right except for a rather prolonged vacation from work. The error here, of course, was in raising his hand above his head rather than changing his position."

Another accident occurred when "a man removed the outer cover of a sampling device. This device has an inner cover which is a heavy rubber type diaphragm and unfortunately in this case it had been left out when the tank was readied for operation. The man got all of 50 gallons of a BW splash starting at his chest and going down but it didn't hit his face and he was not a casualty."

Authors of the report stated that "safety within toxic chemical plants, whether for chemical or biological agent production, is dependent upon a thorough understanding of the precautions necessary to successfully and safely produce an agent or an agent munition. The Army Chemical Corps has, over a period of years, developed an empirical standard for toxic plant design based upon the characteristics of each chemical or biological agent or weapons system being manufactured or loaded into its munition. The Chemical Corps has also determined that it is impracticable to attempt to design a 100 percent safety factor into a chemical or biological agent production plant or filling facility and has therefore provided special clothing, including air supplied suits, for use in handling agents that are especially toxic to personnel safety. Design conditions for the handling of supply and exhaust air within plants is rigidly controlled, including protection of areas outside of the immediate plant to insure that toxic material is not released."

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(For details, use Key # C-13 on card on page 1)

Employees of Cessna Aircraft Company's Military Aircraft Division have achieved a new record for industrial safety. Robert L. Lair, division vice-president and general manager, said the division has just completed a full year without a single disabling accident. This achievement represents a total of 2,600,000 production man-hours. The division reached the 1,000,000 mark in April, 1960 and passed 2,000,000 hours last September.

Lair said employees are now aiming for 3,000,000 hours which would earn them the top National Safety Council award for industrial safety. The division received a merit award from the NSC when the 2,000,000 hours point was reached.

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The employees of the Edge Moor Power Station of the Delaware Light & Power Co. have achieved a record of two million man-hours without a chargeable accident. The safety achievements cover the eight and one-half years from May 1952 through December 1960.

• • •

Mine Safety Appliances Company has been awarded a Certificate of Appreciation for "significant contribution to the educational program of the Industrial College of the Armed Forces." Presentation of the certificate was made by Lt. General George W. Mundy, commandant of the Industrial College, to George H. Deike, chairman of the board. MSA has been associated with the military education program for the past 25 years. In addition to being the world's largest manufacturer of safety equipment, MSA also is engaged in important defense work. Sixteen students and faculty members of the Industrial College visited the company's manufacturing and research headquarters in January as part of the continuing program between the college and several Pittsburgh companies.

• • •

The U. S. Army Transportation Terminal Command, Arctic, was presented the Award of Merit for Safety, one of two made by the Transportation Corps each year, at a staff conference attended by members of the Arctic Command at Brooklyn Army Terminal. Presented by Brigadier General C. F. Tank, Commanding General, U. S. Army Transportation Terminal Command, Atlantic (USATTCA), the award was received by Colonel Philip E. Pons, Commanding Officer, USATTCArctic.

The award is made in recognition of outstanding effectiveness in the prevention of accidents. The Arctic Command has reduced injuries from 18 in Fiscal Year 1959 to 8 in Fiscal Year 1960, a 58 percent decrease. Property damage was reduced more than 85 percent, from $11,080 to $1,575.

• • •

The Steel Buildings division of Armco Drainage & Metal Products, Inc., set an AD&MP safety record by passing the million man-hour mark without having suffered a major injury, W. O. Robertson, president, announced recently. The record covers a period of more than one year. Armco Drainage, a subsidiary of Armco Steel Corporation, has 12 divisions which operate a total of 52 plants in the U. S. and Canada. L. B. Edwards is supervisor of personnel and safety. The division employs approximately 370 hourly and salaried people.

• • •

Sioux Ordnance Depot, Sidney, Neb., on December 10, 1960, established a new safety record for the depot by working 310 days without a disabling injury. Col. Harvey Bower, Depot Commander, lauded the depot's 750 employees for their efforts in setting the new record and commended Jack Sievers, Jr., Chief of the Safety Division, for the depot's excellent safety record during his tenure as division chief. Mr. Sievers is leaving the depot to accept a similar position with the Martin Company, missile manufacturer, in Denver.

• • •

The iron and steel scrap industry has attained the best safety record in its history since record keeping started some ten years ago, it was announced by Fred Gordon, chairman of the subcommittee on Safety, at the recent 33rd Annual Convention of the Institute of Scrap Iron & Steel.

The injury frequency rate was 37.58, based on records of the Institute's 1960 Safety Contest. Mr. Gordon said that attention to safety in the scrap yards of members had been responsible for reducing the industry's injury frequency rate over a period of years. In 1954, for example, the rate was 97.39.

A total of 68 participants in the Institute's 1960 Safety Contest had frequency rates of 0.0, and will receive Certificates of Achievement. Twenty-one participating companies will receive Letters of Commendation for having rates less than the average of all contest participants.

At the Institute's recent annual convention, Mr. Gordon also presented a talk with slides entitled, "Accidents Affect Your Profits." In the talk he urged members to initiate and maintain active safety programs in their scrap yards to reduce accidents, and thereby cut compensation insurance costs.

Large bronze plaques were presented to the three first place winners in each category of the contest and permanized plaques were given to second and third place winners. The winners are:

10 or Less Employees

First: Pitts' Inc., Sioux Falls, S. D.
Second: McNichols Scrap Iron & Metal Co., Detroit
Third: American Pipe & Junk Co., Amarillo, Tex.

11 to 30 Employees

First: Lancaster Iron & Metal Co., Lancaster, N. Y.
Second: McNichols Scrap Iron & Metal Co., Albany, N. Y.
Third: Southern Converting Co., Inc., Greensboro, N. C.

Over 30 Employees

First: Louis Padnos Iron & Metal Co., Holland, Mich.
Second: Morris Wilkof Co., Canton, O.
Third: Scrap Iron Baling Corp., Brooklyn, N. Y.

• • •

The Mississippi Power & Light Company has been awarded Ebasco's 13th annual Gold Safety Award for "its outstanding 1960 achievement in employee safety," it was announced by Harold H. Scaff, vice president of the management consulting, engineering and construction firm. Mississippi Power & Light earned the top Ebasco client company award by achieving a safety record that surpassed the rest of the electric utility industry by 63 percent.

The Ebasco Silver Plaque was awarded to the Escambia Chemical Corporation for posting a safety record 58 percent better than the chemical industry average.

Five domestic utility companies received Ebasco's Certificate of Achievement for attaining safety records substantially better than the national average for the utility industry: Louisiana Power & Light Company, The Washington Water Power Company, Chattanooga Gas Company, The Western Colorado Power Company, and the Public Service Company of Colorado.

The awards are made annually to Ebasco client companies which have the best safety records in relation to the national average for their industries.

In making the awards, Mr. Scaff said that an effective safety program has many benefits besides employee welfare, public relations and work force efficiency.

"As the unit cost of wages, materials, supplies and fringe items goes higher and higher," he said, "increased safety and accident control can be a significant factor in cost reduction and increased profits."

• • •

The First United States Army has received the National Safety Council's Award of Honor for an outstanding safety performance during Fiscal Year 1960 (July 1, 1959 to June 30, 1960). This is the second straight year First Army has received the Council's top award for its safety record among Army installations and activities throughout the New England states, New York and New Jersey.

The basis for this year's award is a theoretical savings of $1,004,239 through a reduction of all types of accidents and injuries. One out of every 63 persons was involved in a recordable accident during FY 1960 as compared with one out of every 53 for FY 1959 and one out of every 43 during FY 1958.

Thomas Ayers, First U. S. Army Safety Director, presented the award on behalf of the Council to Lieutenant General Edward J. O'Neill, First U. S. Army Commander, at a brief ceremony in the Headquarters. During the presentation he said that "credit for winning this award for two consecutive years goes to the First Army commanders, their staffs and personnel for supporting the safety program so admirably. Without this interest and support," Mr. Ayers continued, "the command would not and could not have accomplished these savings."

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(For details, use Key # C-14 on card on page 1)

CEMENT THAT POURS

Versatile pourable cement introduced by the Monroe Co. has a high degree of workability on application and a fast setting capacity. Among its many uses are positioning and setting anchor bolts; fastening pipe flanges, hand rails, partitions, stanchions and furnaces. Used as a fast setting grout for machinery bases, it is said to produce a hard base on which machinery can be put back in operation the same day. Called Evr-Tite, the pourable compound is a finely divided powder containing expansion controlling, water-erosion resistant additives. The manufacturer reports that it does not shrink while setting bonds readily to other materials, and withstands severe impact, stresses and vibration. It is odorless and self-leveling.

For details, use **Key # PM-1** on inquiry card on page 1.

STATIC CHARGE MOPS UP HARD-TO-GET-AT PLACES

A swivel-headed dry mop designed to pull dust and dirt from out-of-the-way corners has been announced by the New England Mop Co. The Hospital Magnetic Mop is made entirely of virgin wool blends. As it is used, the wool builds up a static charge that attracts dust to the mop head. The hundreds of dust traps along each strand of yarn are said to hold the dust accumulation of an average room. A quarter turn of the long 54" handle swivels the head to get behind radiators and machines, or into other areas where dust accumulates and is seldom reached. Mop heads are removable for easy maintenance. The standard head cleans a foot-wide swath, but extra-broad heads are also available.

For details, use **Key # PM-2** on inquiry card on page 1.

REMOTE-CONTROL CLEANER

Automatic remote control is featured in a new steam cleaner developed by the Steam Cleaner Division of Clayton Mfg. Co. for plant maintenance service. Controlled from the operator's squeeze-grip gun, the Model 200 Clean-Master delivers up to 200 gallons/hour of high-impact vapor solution. Its electrical system is completely enclosed for safety. Both gas and oil fired units are available, as well as other models from 60 to 600 gallons/hour.

For details, use **Key # PM-3** on inquiry card on page 1.

PLANT MAINTENANCE DEVELOPMENTS

NONSLIP STAIR TILE

Worn or dangerous stair treads, ramps and walkways can now be resurfaced with Alundum Stair or Floor Tile, according to the Norton Co. The durable nonslip tile, 65–80% aluminum oxide abrasive, has been widely used in new construction for over forty years. Recently, new installation methods have made it available to safeguard older stairways and other hazardous locations.

An epoxy adhesive, spread only 1.5 mils thick, will anchor tile firmly to wood or concrete. (Centennial tile adhesive, made by Howe & French, Inc.) Conventional tile mortar mix can also be used, or Alundum tile can be supplied in ¾" thickness with screw holes for mounting.

For details, use **Key # PM-4** on inquiry card on page 1.

HEAVY-DUTY SNOW PLOWS

Two heavy-duty rotary snow plows for commercial and institutional snow removal are offered by Eska Manufacturing Co. The maneuverable self-propelled plows are suitable for sidewalk, driveway, parking and storage area snow removal. Special feature is a patented slit-spiral rotor feed rake, developed originally for highway and railroad rotary snow plows. Snow cannot pack around the rotor nor clog the moldboard.

The Model 20 Eska Plow features 20 inch cutting width and a 4 horsepower engine. It casts up to 600 lbs. of light, wet or chunky snow per minute. The Model 26 plow features 26 inch cutting width and a 7 horsepower engine. It casts up to 1200 lbs. per minute. Both have cast iron industrial engines, with preheating carburetors to assure quick starts during sub-zero weather, two speeds for handling light or heavy snow, and neutral gear. An automatic safety clutch protects the rotor from damage if any foreign object enters the moldboard. Ball bearing guide wheels allow plow to work smoothly over uneven surfaces. Casting chute rotates through a 180 degree arc to allow "spot casting" or placement of snow where desired. Optional electric starter that plugs into house outlet.

For details, use **Key # PM-5** on inquiry card on page 1.

ACRYLIC FLOOR FINISH

General purpose floor finish that combines carnauba wax with a new acrylic compound is available from R. M. Hollingshead Corp. Known as Whiz Acrylic Finish, it is intended for asphalt, vinyl, rubber and linoleum surfaces. The new finish is said to be unusually easy to apply and maintain, requires only periodic buffing. Supplied in one, five, thirty and thirty-five gallon containers.

For details, use **Key # PM-6** on inquiry card on page 1.

CLEANS UP SHOWER STALLS

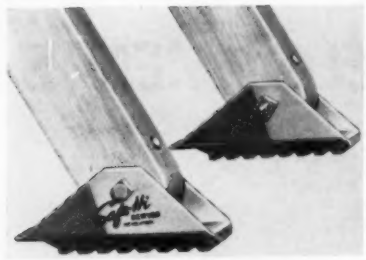
Compounded especially for tiled washroom surfaces, a liquid cleaner offered by Horizon Industries removes soap and lime deposit from shower walls, leaves a protective sheen that sheds water. Rally Tile Cleaner also shines faucets, chrome, and aluminum; brightens discolored grout between tiles, while preventing further discoloration from mildew. The liquid is used undiluted. It comes in one-quart polyethylene bottles with no-waste spout.

For details, use **Key # PM-7** on inquiry card on page 1.

RUST-PREVENTIVE PAINTS

Metal paints that combine the strength and adhesive qualities of epoxy resins with a new rust-fighting phenomenon called Cationic Action, are being marketed by Garland Co. The Rust-Go coatings are claimed to have extraordinary properties for penetrating through bare metal and depositing a rust-preventive film that continues to fight rust for the life of the coating. The epoxy film is said to seep into the microscopic pits in the surface and drive out air and moisture.

For details, use **Key # PM-8** on inquiry card on page 1.



ANTI-SKID LADDER SHOES

Ladder workers are offered protection against slipping accidents by Safe-Hi ladder shoes from Rose Mfg. Co. The aluminum ladder shoes are especially useful to maintenance workers, electrical and paint contractors, and others who frequently have to set up ladders on smooth surfaces.

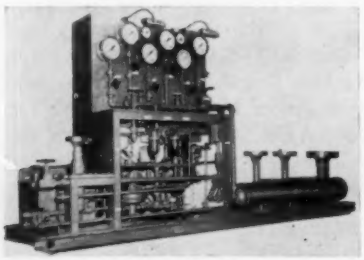
Tread construction of neoprene and fibrous material is designed to prevent slipping on any industrial surface, wet or dry—even soapy or greasy floors. A series of straight ridges crosses the line of slippage, scrapes off slick deposits for a good grip. Shoes come in three widths, ⅞, 1⅛ and 1⅜ inches. They can be installed on any size ladder by simply rounding off corners of the ladder rails. Non-spark model available for hazardous locations.

For details, use **Key # PM-9** on inquiry card on page 1.

VALVE TEST STAND REDUCES DOWN TIME

A low-cost valve test stand that meets ASME requirements has been announced by Farris Engineering Corp. According to the manufacturer, it tests all valves including globe, gate, plug cocks, safety and relief valves. Other hydraulic-pneumatic equipment can also be tested.

The universal stand was developed to eliminate costly and time-consuming outside valve maintenance. It is said to cut down on valve inventory as well, since it permits resetting valves for different applications and pressure variations. No special training is required to operate the stand. All controls are located on one panel, with clear instructions printed nearby. The unit measures 10½′ by 3′, tests pressure settings up to 2000 psi for air and 6000 psi for water. Built-in air compressor can be used separately.



For details, use **Key # PM-10** on inquiry card on page 1.

VACUUM TOOLS EASE TOUGH CLEANING JOBS

A new line of vacuum cleaning tools has been announced by Lamson Corp. Designed to handle any industrial cleaning job, they include floor and wall brushes and special nozzles for overhead cleaning and hard-to-get-at places. Exidust vacuum tools feature lightweight, interchangeable heads and wands. Positive locking action guards against parts separating in use. According to the manufacturer, operation is highly efficient and free from static.

For details, use **Key # PM-11** on inquiry card on page 1.

URETHANE FLOOR SEALS

Two industrial floor seals based on urethane polymeric components have recently been developed by Puritan Chemical Co. They are Primathane, a heavy-duty primer coat and penetrating seal, and Urethol, a heavy-duty floor seal and finish. Urethol, with an abrasion coefficient of .027, is said to be almost twice as resistant to abrasion as phenolic-type seals. Both are recommended by the manufacturer for wood and concrete floors in industrial plants, textile mills, food processing plants and warehouses. They are reportedly non-toxic and non-irritating, quick-drying and easy to strip.

For details, use **Key # PM-12** on inquiry card on page 1.

GAS LEAK DETECTOR

Extremely small leaks of any compressed gas are easy to locate with Calgon Gas Leak Detector. A high-viscosity liquid, it forms bubbles when daubed on pipe joints where leakage is suspected. The liquid leaves no deposit or stain; use is said to be harmless to skin and without danger of fire. It works on all compressed gases, including air, carbon dioxide, nitrogen, natural gas and refrigerant gases. Packed in six-ounce unbreakable plastic bottles with stainless steel dauber rod.

For details, use **Key # PM-13** on inquiry card on page 1.

LIQUID DRAIN CLEANER

A liquid version of their Bingo Drain Pipe Opener has been developed by Huntington Laboratories, Inc. According to the manufacturers, the new liquid product offers maintenance men a faster, more convenient way to dislodge grease, hair, coffee grounds and other trouble-makers from pipes and plumbing fixtures. It is reported safe for glass, metal and porcelain when used as directed. Liquid Bingo comes in non-breakable plastic bottles.

For details, use **Key # PM-14** on inquiry card on page 1.

HIGH-POWER CLEANER

A new cleaner, said to solve the toughest cleaning problems, and yet be safe for all washable surfaces such as floors, ceilings, walls and machinery, is available from S. C. Johnson & Son, Inc. The product, Forward, has an exceptionally high alkaline cleaning power but is silicate-buffered for safety.

The balanced formula fights off the neutralizing action of dirt, it is reported, and when a mop or sponge transfers dirt to the cleaning solution, there is no fade-out of cleaning power. Effective against grease, oil and other stains, Forward is designed for problem areas including floors, walls, windows, lighting fixtures, rest-rooms, and locker rooms. Contains a bacterial reducing sanitizing agent.

For details, use **Key # PM-15** on inquiry card on page 1.

ONE-COAT VINYL SPRAY

Multiple coats are not required to give full anti-corrosion protection with new high-build vinyl spray from Amercoat Corp. When applied with airless spray equipment, just one cross-sprayed coat of Amercoat No. 99 provides a dry film thickness of more than five mils. Two coats are required with conventional equipment. Manufacturer recommends this spray for tank exteriors, ships' hulls and all types of structural steel. Not a mastic, No. 99 dries without sag to a hard and tough matte finish, adheres firmly and resists abrasion. It may be applied over organic primers. According to the manufacturer, it is non-flammable, odorless and non-toxic, will not harbor bacteria or fungi.

For details, use **Key # PM-16** on inquiry card on page 1.

"GARDWELL" SAFETY CLOTHING and EQUIPMENT FOR EVERY INDUSTRIAL WORKER

For maximum protection at lowest cost specify GARDWELL, designers and manufacturers of safety clothing and equipment since 1924.

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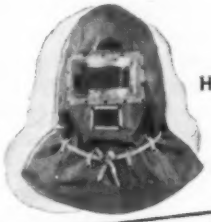

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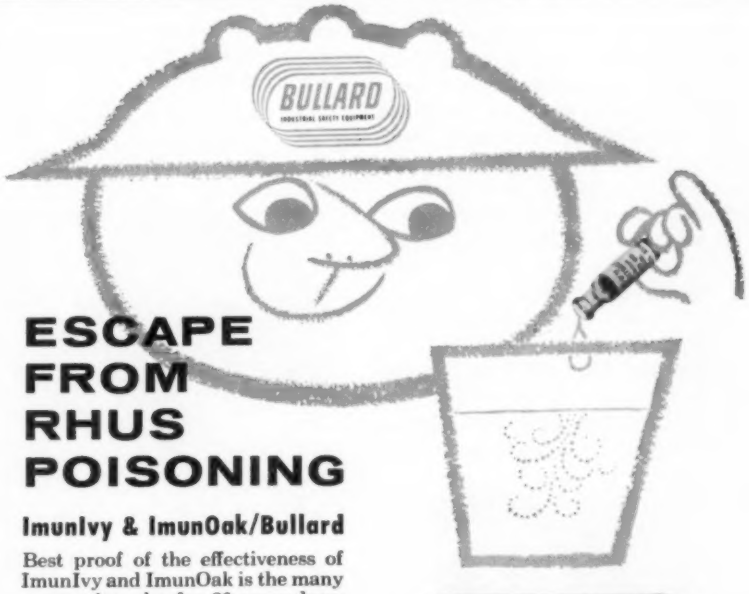

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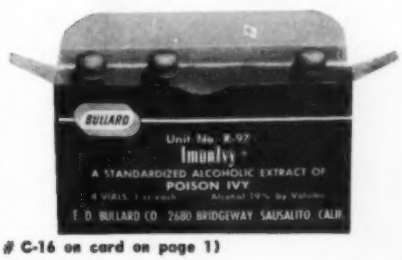


(For details, use Key # C-16 on card on page 1)

ROOF WEATHERPROOFING

A new, simplified method for waterproofing and insulating roofs on commercial and institutional buildings has been developed by Pace Products, Inc. This process specifies the use of a quick-setting bonding adhesive, Seal-Tex, into which fine spun, asphalt coated glass membrane is imbedded. A non-bleeding heavy duty aluminum roofing, Silverleaf, is then applied as the finish coat. Adhesive and glass synthesis heals surface breaks and cracks, while the aluminum shields the roof mat, and prevents oxidation. By reflectivity it provides the insulation. Treatment acts as a definite vapor barrier, keeping heat out in summer and preventing its escape in winter. Substantial savings in operating air conditioning after such a roof renewal is claimed by the manufacturer.

For details, use **Key # PM-17** on inquiry card on page 1.

STEEL YOU CAN SQUIRT

Strong new metal mender, made of steel in plastic form, is offered by Magic Iron Cement Co. Called Magic Steel, it is intended for soldering, sealing, repairing and filiing all metals. Also sticks fast to wood, glass, porcelain, concrete, stone and other construction materials. Typical uses include repairing machinery parts or tools, patching leaky drums and containers, sealing pipes, filling dents in car and truck bodies and stopping tank and boiler leaks. It can be used to hold anchor bolts to a cement or concrete base.

Applied without heat or tools, Magic Steel dries metal-hard in two to three hours. When dry it can be filed, sanded, drilled or painted; does not rust or corrode. Said to be unaffected by water, gasoline and most chemicals. Available in 6½ ounce tube with applicator cap, as well as in half-pint, quart and gallon cans.

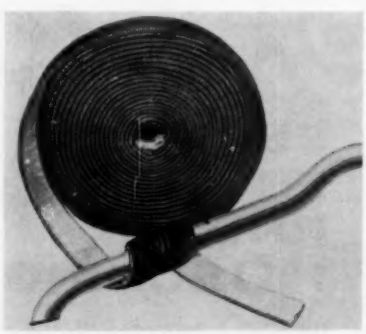
For details, use **Key # PM-18** on inquiry card on page 1.

ALUMINUM BRIGHTENER DOES 3 JOBS AT ONCE

Three basic cleaning jobs are performed simultaneously by a new aluminum cleaner available from Sea-Air Chemical Corp. A liquid combination of solvents, mild, non-injurious acid and detergent, it is marketed as Deck-Glo Aluminum Wash. Solvents in the compound dissolve grease and oil, acid removes stains and oxide films, and detergent action separates grime and grit from the metal surface. In addition, the cleaner deposits an inert, invisible coating that helps to retard formation of new oxides.

The new brightener is intended for use on aluminum trucks, trailers, aircraft skins, railroad cars and building facings. It is also effective on stainless steel, copper, enameled and lacquered surfaces. Can be used indoors and outdoors, even in bright sunlight. Harmless to painted surfaces, it is also reported to be non-toxic, non-flammable, and to release no harmful fumes.

For details, use **Key # PM-19** on inquiry card on page 1.

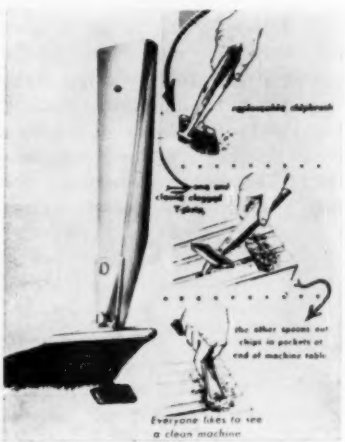


WRAP-ON PIPE INSULATION

A wrap-on asbestos insulation said to both flameproof and weatherproof has been announced by Union Asbestos & Rubber Co.'s Fibrous Products Division. Called Insutape, it is designed for a wide variety of industrial applications requiring an easy-to-apply, economical insulating material. Insutape consists of long-fibered asbestos rovings, completely enclosed in a tubular, woven asbestos jacket. Exposed surfaces and edges are heavily coated with neoprene. This tough, abrasion-resistant coating is reported to be essentially non-combustible, and resists penetration by moisture, grease and oil.

The product is especially useful under close-clearance conditions and for bent or curved pipe and instrument lines. Snug fit is quickly achieved by working spiral wrappings with the hands and pressing tape edges firmly together to assure maximum conservation of heat. Wire bands or clamps are used to secure. Tape can be removed and reapplied without loss of insulating efficiency.

For details, use **Key # PM-20** on inquiry card on page 1.



BRUSH & T-SLOT TOOL

Combination hand tool now available from Kelm Mfg. Co. makes it easy for machinists to clean out chips in the T-slotted tables of milling machines, radial drills, jig-borers, etc. Replaces cleaning with makeshift tools or blowing out by air hose, with its dangerous spraying of chips and oil. One end of tool cleans out the T-slot channels when drawn to the well end of the table. The other, shaped like a spoon, scoops up the chips and disposes of them. Brush wipes away the few chips left.

This tool cleans faster than makeshift methods and prevents damage to the machine table that such

methods can cause. Because it cleans thoroughly, T-nuts can be inserted without a hammer and drift. Body of the tool is made of 16-gauge steel; bristles are tough and resistant to sharp chips and cooling oils. Available with or without brush in regular size (slots 11/16" and larger) and small size (slots 5/8" and smaller). Either size can be ground easily to fit odd-size slots.

For details, use **Key # PM-21** on inquiry card on page 1.

METALLIC SEALANT

A sealing compound designed for the automotive and marine industries is offered by Armite Laboratories. Called Anti-Seize No. 609, it consists of suspended metallic lead. The new sealant can be used as thread lubricant and sealer, hose connection and gasket sealant, for press fits and as cable lubricant. It is reported impervious to gases, oils, fuels, water and steam, completely unaffected by temperature. Assures perfect thread sealing under pressure or vibration. Anti-Seize No. 609 has Underwriters' Laboratories listing for propane, butane, gasoline and petroleum oils. For hydraulic fluids it has manufacturers' specifications and approval to 100,000 psi. It is not sticky, and will not harden, oxidize or corrode.

For details, use **Key # PM-22** on inquiry card on page 1.

RUST-RESISTANT PAINT NEEDS NO PRIMER

Protection of metal from rust and weather damage is offered by Speco, Inc. in the form of Rustrem, a new paint said to be suitable for machinery, buildings, tanks, etc. The product requires no primer and can be sprayed or brushed on without most of the wire-brushing, scraping and sandblasting frequently required. It is reputed to penetrate rust layers and adhere firmly to the base, forming a tight seal to resist moisture, temperature changes, chemicals and mild acids. Can be applied in locations where moisture is always present, or in emergency winter painting.

For details, use **Key # PM-23** on inquiry card on page 1.

DIAMOND MASONRY CORES

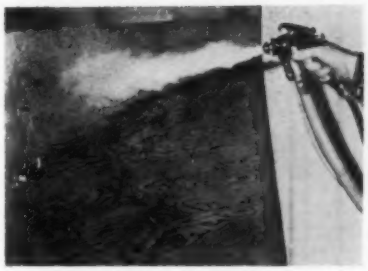
A complete line of diamond hole saws has been brought out by the Robert G. Evans Co., manufacturer of masonry and concrete sawing equipment. With these, the company claims it is possible to core holes in any masonry wall, floor or ceiling. A standard heavy-duty drill or special coring machine may be used. Target masonry cores use natural diamonds, precisely positioned in wear-resistant metal bonds and mounted on steel tubes. They are made for brick, tile, stone and steel-reinforced concrete. According to the manufacturer, savings of one-third to one-half of previous diamond core costs have been achieved.

For details, use **Key # PM-24** on inquiry card on page 1.

BLENDED "TRUCK CLEANER"

A robust blend of wetting and penetrating agents, solvents, detergents and rinses, A-11 Truck Cleaner from Arlin Chemicals, Inc. is intended especially for sanitation and disposal equipment, but has other uses as well. Usually mixed with hot or cold water, two ounces to the gallon, it can be made as powerful or as mild as required. Its neutral pH makes it safe for all painted surfaces. The manufacturer states that it is non-toxic, non-flammable and will not cause dermatitis.

For details, use **Key # PM-25** on inquiry card on page 1.



FIBERGLAS FLAKES MAKE VERSATILE SPRAY COATING

A corrosion-resistant spray coating for metals, wood and concrete has been developed by Owens-Corning Fiberglas Corp. Intended for fields where corrosion is a major problem, it is a homogenous mixture of Fiberglas Flake, resin, fillers, accelerator and pigment (if desired). Many applications are foreseen in the transportation and construction fields, as well as on chemical and oil storage tanks, jackets for industrial stack insulation, ducting for chemical materials, concrete sewer lines, etc.

Use of Fiberglas Flake with resin is said to reduce shrinkage, increase impact resistance, and eliminate surface crawling and sagging because of the high shear force that exists between layers of flake and resin. The new coating is also said to form no pinholes or surface haze. A special spray gun unit, currently available from the De Vilbiss Co., is used to apply the flake coating. For very small areas, a hand trowel may be used. No mixing is required on the job since fillers and accelerators are incorporated in the product.

For details, use **Key # PM-26** on inquiry card on page 1.

WATER-REPELLENT SEALER

A new sealer, developed by Worrell-Consolidated Laboratories, Inc., may be applied to various building materials, including limestone, brick or stucco, and will keep out all moisture, the company reports. The product, Syn-Rez is said to be effective over a long period of time. It is easy to apply, requires only one coat, and is clear in color, so that it can be applied over any paint, or be painted over.

For details, use **Key # PM-27** on inquiry card on page 1.

LAWN SWEEPER FEATURES OPERATING CONVENIENCE

Lift-out hamper for easy dumping and fingertip sweeping height adjustment are two of the convenience features available on new model Lawn sweepers, according to the manufacturer, Lambert, Inc. Just by moving the Hite-Selector Lever, located on the sweeper handle, the operator can move immediately from lawn to driveway sweeping. No delays while nuts and bolts are loosened or lost. Light but sturdy, the steel and canvas hamper lifts out instantly for removal to truck or other dumping location.

For details, use **Key # PM-28** on inquiry card on page 1.

SPRAY ROOFING METHOD

A method of installing industrial roofing in a single, time-saving spray operation was recently introduced by the Flintkote Co. Called the Monoform System, it makes use of a special gun with three nozzles for simultaneous application of two coatings and chopped glass fiber. Conventional roofs are built up in layers. The manufacturer states that a three-man crew using the gun can install between 15 and 18 thousand square feet of roofing material a day, compared to only eight thousand square feet with a five-man crew using conventional methods.

Suitable for flat or free-form surfaces, the flexible spray system can handle a variety of coatings, as well as granular aggregates, decorative flakes, etc. It produces a single monolithic film, seamless and comparatively light in weight. Heart of the system is the Sealzit spray gun, which can also be used to apply side walls or insulation, for sound deadening and pipe coating, waterproofing, and corrosive protection in water tanks, etc.

For details, use **Key # PM-29** on inquiry card on page 1.

FIXES ROOFS IN THE RAIN

All-weather roof repair is made possible by a waterproof patching compound called Damp-Dek, available from the Monroe Co. It comes ready for use, in both liquid and plastic form for application by brush or trowel. The manufacturer advises immediate repair of roof leaks, to avoid possible water damage.

For details, use **Key # PM-30** on inquiry card on page 1.

TRANSISTOR VALVE LOCATOR

A lightweight transistorized pipe valve and cable locator has been put on the market recently by Gardiner Electronics Co. The transmitter and receiver use a total of eleven transistors, and are powered by four flashlight batteries each. Both units have built-in battery testers; average battery life is 1400 hours. The transmitter has a switch that allows for good and poor conductive ground, while the receiver has 3-position sensitivity and variable gain control. Single-turn sensing coil is cast in the glass fiber housing. Drop handle adjusts to operator's height. Simple instructions are printed on the receiver panel.

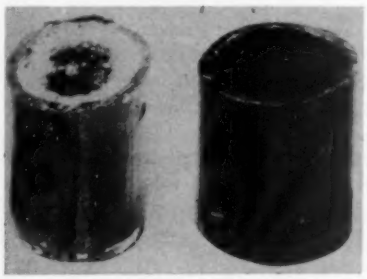
For details, use **Key # PM-31** on inquiry card on page 1.

METAL PROTECTIVE PAINT

An all-purpose black coating, for protecting metal against rust and other exposure conditions, is announced by Maintenance Inc. Trade-named Everwear J-41-B, the paint is reputed to produce an attractive, bright ebony black finish, impervious to water and resistant to chemical attack by gas fumes and smoke. Because of its penetrating and spreading qualities, it can be used after minimum surface preparation. It is said to be anti-corrosive above or below grade.

According to the manufacturer, J-41-B remains elastic, permitting it to expand and contract with metal during extreme temperature changes. This makes it highly suited to tanks, metal roofs, siding, drains, bridges, beams, girders, cables, steel window frames, machinery, etc. The product dries quickly and is adaptable to either brush or spray application.

For details, use **Key # PM-32** on inquiry card on page 1.



LIQUID SCALE REMOVER

Scale, slime and algae removal and rapid head pressure reduction on air conditioning systems, without danger of acid burns or metal corrosion, can be accomplished with Scalex, reports the manufacturer, Lester Laboratories, Inc.

Scalex is non-toxic and gentle to the hands and eyes; it contains no hydrochloric or other fuming acids; does not corrode copper, brass, aluminum or steel; and will not attack wooden or painted towers. Photograph shows cut section of a copper pipe before and after (right) scale remover treatment.

For details, use **Key # PM-33** on inquiry card on page 1.

LOW-COST LINE PAINTER

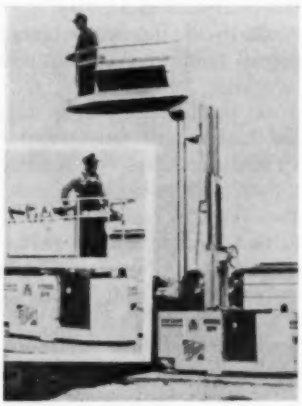
Announcement of a simplified line striper designed for quick and efficient marking of safety guide lines, etc., has been made by Cost Reduction Equipment Co. The low-cost line marker can produce up to 500 feet of lines before refilling. Gravity-feed paint control is accurately controlled at a waist-level handle grip. Lines are applied by simply guiding the four wheel line marker and walking at a normal speed. Straight or curved lines can be made with equal ease in two, three, or four inch widths by changing the interchangeable high-quality fiber brushes. Marker is ideal for a wide range of applications including warehouses, game courts, parking lots, stalls and all industrial and safety guide lines. Straight-through feed valve and simplified aluminum tank construction permits easy cleaning and complete paint recovery after completion of painting.

For details, use **Key # PM-34** on inquiry card on page 1.

LADDER ROLLS—SPEEDS JOB

A mobile ladder has been designed by the Dayton Safety Ladder Co. for use in all types of industrial maintenance operations. Two rubber-tired swivel casters on the rear supports permit this ladder to be rolled from job to job for maintenance work, and also make the ladder especially handy for jobs that require frequent changes in ladder position. The Roll-Along Ladder meets ASA Safety Code specifications. It is constructed of sturdy, lightweight airplane spruce throughout, and reinforced with steel braces. Steel hand rails guard the platform area for operator safety. The front supports are equipped with anti-slip shoes which have renewable neoprene treads. Ladder folds compactly for storage, and locks automatically when it is set up. Available in three sizes, 3′, 4½′ and 6′, measured to platform.

For details, use **Key # PM-35** on inquiry card on page 1.



ONE-MAN SKY HOOK

A mobile hydraulic telescoping platform lift with a rotating platform has been announced by Grand Specialties Co. Designed for "high reach" installation and maintenance work, the unit may be operated by a single man. It rises from a minimum height of 8 ft. to a maximum height of 15 ft. and features a self-contained water system with convenient three compartment sink on the platform, 30 gallon tank in the base. The water system is operative while the unit is in motion. Run by a 24 volt battery with push button control, the Sky Liner has two speeds. The platform can make a complete 360 degree turn, and extends out 6′6″, so that operator can reach over shelves, tables, etc. Operates easily in a 4 ft. aisle and may be transported from floor to floor in a freight elevator. Rigidly constructed, the Sky Liner has a load capacity of 400 lbs.

For details, use **Key # PM-36** on inquiry card on page 1.

Cleaning Progress?

The medicine man's techniques are still around—operating in the field of engineering, claimed a scientist recently. But those techniques aren't doing plant owners any good.

Chemical cleaning of plant equipment—to prevent rust, corrosion and fouling—hasn't risen much above the secret snake oil formula stage said Charles M. Loucks, consulting chemist, Materials and Methods, Inc., Westlake, Ohio. His remarks were contained in a paper presented at the Winter Annual Meeting of The American Society of Mechanical Engineers in New York.

While plant equipment has grown progressively better over the decades, methods of keeping the equipment in trouble-free operation haven't changed, in some cases, in twenty years, Mr. Loucks went on.

It's true, he said, that some companies "are assigning able engineers and chemists to be specifically concerned with the chemical cleaning aspects of plant maintenance." Perhaps service contractors who clean machinery will also compete with each other to come up with newer, better technical developments. "The competition up to now has tended to see who could haul a load of acid cheapest."

Solution of the cleaning problem isn't so easy, Mr. Loucks continued. Knowledge of the problems involved is divided among engineers, maintenance people and chemists, none of whom seem able to get together. "Chemical manufacturers do invest money in obtaining knowledge of new materials that they hope to sell later at a profit. They send out data sheets and samples and technical service people who

know the properties of the materials. But their knowledge of maintenance problems is limited." he said.

Mr. Loucks suggested several benefits to be hoped for from technical progress in chemical cleaning. These include—less time in actual cleaning of boilers, cleaning systems with materials other than muriatic acid, which can corrode metal, and less fouling in process and refinery equipment.

Other papers presented at the same session of the ASME meeting seemed to indicate progress in chemical cleaning.

William E. Bell, technical service department, Charles Pfizer and Co., Inc., Brooklyn, New York, presented an analysis of the effect on iron and steel of citric acid solutions. Although some citric acids have been widely used over the past eighteen months, the ammoniated form, which may have several advantages, has been little employed, he reported. His tests showed that ammoniated citric acid gives a lower inherent corrosion of bare metal and reacts more quickly on some deposits.

Reactions between the cleaners and metals have not been completely described or analyzed, Mr. Bell said, concluding that "it is a fact that the utility of citric acid in chemical cleaning is more advanced than the science."

H. J. Vyhnalek, supervisor of the plant chemistry unit for the Cleveland Electric Illuminating Company, Cleveland, Ohio, told the session that "a knowledge of the chemical composition of isolated deposits and the amount of corrosion which can be tolerated are the important factors in determining when separate cleaning stages are necessary" for various boilers.

Pre-Boiler Cleaning

In discussing cleaning of pre-boiler equipment, W. B. Willsey, assistant chief chemist, Philadelphia Electric Company, Pa., stressed the fact that "the best time to plan for chemical cleaning of the pre-boiler cycle is during the design stage, rather than after the equipment has been constructed. If the decision to clean this equipment is arrived at in time to incorporate design features and modifications such as necessary valves and connections appropriately located in the system, and such planning as necessary for heating and flushing of all areas to be chemically cleaned, a more complete and effective job will result."

He concluded, "careful preplanning and incorporation of chemical cleaning plans in system design are invaluable aids to performing successful and economical cleaning operations."

Maintenance Institute

Maintenance, an ever-growing important phase of today's highly mechanized civilization, now has a new society, the International Maintenance Institute. This is a non-profit organization, chartered under the laws of the State of Connecticut, and is dedicated to the recognition of the importance of industrial maintenance throughout the world.

In a push-button age, highly skilled technicians must keep factories and machines so maintained that they will work unfailingly as needed. It is in recognition of this basic fact, and of the increasingly important role played by maintenance specialists, that the new institute has been formed.

Newly-elected first president of the Institute is George J. Martin, internationally famous authority on maintenance problems and solutions.

Aims of the Institute are to act as a clearing house for information, to disseminate technical knowledge, to deal with practical, down-to-earth problems and solutions in the whole broad field of industrial maintenance.

Some of its specific goals will be to advise on such things as: effective maintenance set-ups; contracted maintenance; maintenance stores control; maintenance shops; maintenance cost control; reports to management, and a host of other subjects of prime importance to key personnel in the maintenance function as well as to management in general. The Institute will also seek to raise the status of the maintenance function, as important to industry today as machines and factories themselves.

As part of its activities, the Institute will hold seminars, conferences and regional chapter meetings, bringing to members the newest and latest in techniques, and facilitating a free flow of information between all members.

Individual maintenance managers, supervisors and key maintenance personnel, as well as corporations interested in this highly important function in today's business are invited to write to: International Maintenance Institute, International Headquarters, Box 409, Greenwich, Connecticut.

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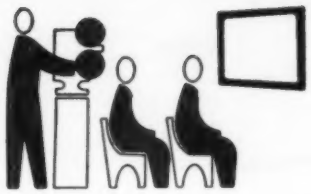
New Welding Definitions

The American Welding Society announces the availability of a new revision of AWS Standard Welding Terms and Their Definitions. It is the first revision in 12 years and many changes have been incorporated and much new material added. This is considered to be the most important Standard published by the Society. It is the dictionary of welding.

A new Master Chart of Welding Processes has been prepared in conjunction with the AWS Definitions. The 39 recognized welding processes are presented in a new layout designed for ready reference. Colors are used for the first time to separate the various welding processes and this provides instant identification. The Master Chart is available in 2 sizes; an 8½" x 11" size for desk use and a 22" x 28" size for wall use.

Copies of the AWS Definitions (including desk Chart) may be obtained for $2.00 per booklet. Copies of the wall or desk Chart may be obtained separately at a list price of $1.50 and $.50 respectively, from the American Welding Society, Dept. T, 33 West 39th Street, New York 18, N. Y.



Safety on Film

New Films for Commercial Drivers

The National Association of Automotive Mutual Insurance Companies announced the completion of two new sound-color films for training of commercial vehicle drivers. Each 16mm film runs approximately 10 minutes.

"Can You Stop In Time" is the story of one driver's awakening to the distance it takes to stop his vehicle. It emphasizes the need for allowing proper space when following other vehicles and discusses factors which vary stopping distance.

"Intersection Safety" features an insurance claim representative who illustrates different types of intersection collisions. It depicts intersection situations and presents four basic rules for preventing this type of accident.

Copies priced at $65 or preview prints, may be obtained from Dallas Jones Productions, Inc., 430 W. Grant Place, Chicago 14, Illinois.

Flame Spread Film

What happens when a flame travels through a flammable mixture in a confined space?

The answer is dramatically demonstrated in "Flame Propagation," a new 16mm sound color film produced by the American Gas Association's Accident Prevention Committee in cooperation with the U. S. Bureau of Mines.

Designed to promote employee safety while working in or around flammable mixtures, the movie tells its story by illustrating why safe practices are necessary rather than by urging the observation of arbitrary rules.

The new 20-minute film shows how a flame travels through such enclosed spaces as mines, pipelines, sewers, electrical conduits and explosion-proof electrical fixtures. Scenes demonstrate that when anything burns in the open air, the flame "dances" above the fuel. If a flammable mixture is ignited in a confined space, however, the flame travels—sometimes with the violence of an explosion. This travel of flame, which may be up, down or sideways, is called "flame propagation."

Prints of the new film, priced at $200 each, may be obtained from the Order Dept., American Gas Association, 420 Lexington Ave., New York 17, N. Y.

Flammable Liquids Film

The subject of the safe handling, use and storage of flammable liquids in industry is covered in a newly completed 16mm motion picture film, produced by Protectoseal Co. The 20-minute color and sound movie is designed to show the potential hazards of misusing flammable liquids, to educate personnel in the safe techniques and methods of using them, and to stimulate interest and cooperation in utilizing safe handling procedures.

The story line for the film has been kept simple and direct for maximum dramatic impact and to make its point for a wide variety of audiences. Special emphasis has been given to showing the dangers of unseen explosive vapors that constantly arise from flammable liquids. For details about the new film, write to: The Protectoseal Co., 1920 S. Western Ave., Chicago 8, Ill.

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(For details, use Key # C-17 on card on page 1)

Bicycle Safety Film

Over 20 million Americans have seen a 20 minute 16mm sound film which teaches bike safety to America's speed-indoctrinated youngsters. "Bicycling Safely Today," produced by the Bicycle Institute of America, is proving popular with educators, safety and civic groups. This black and white film, available on loan to interested groups, features Ted Smith, former U. S. Olympic bike racer, demonstrating proper cycling methods.

Filmed in a typical suburban neighborhood and narrated by Bud Collyer, widely known television personality, "Bicycling Safely Today" takes you down shady streets and across busy intersections as Mr. Smith and a companion show young bike owners the importance of knowing and observing the rules of safe riding.

Besides offering safety advice, the film explains how bicycling may be incorporated into club activities with organized hikes. If your organization would like to utilize this film to complement a safety program, it may be obtained by writing to the Bicycle Institute of America, 122 East 42nd Street, New York 17, N. Y. Borrowers pay shipping costs in both directions. There is no other charge for its showing.

inside the trade

Charles R. Eddy has been appointed eastern factory sales representative for *SELLSTROM MFG. CO.*, Palatine, Illinois, manufacturers of face and eye protective equipment. Serving the east coast territory, he will call on distributors of welding and safety products. Mr. Eddy comes to Sellstrom with an extensive background in sales work (Burroughs Corp., Devoe & Raynolds, etc.) and has just completed a comprehensive factory training program. His territory includes Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New Jersey, Delaware and the eastern parts of New York, Pennsylvania, Maryland and Virginia.

SWITZER BROTHERS, INC. of Cleveland, Ohio have recently opened a new plant at 9314 E. Fern Street, S. El Monte, California. This expansion has been made to offer faster, more efficient service to Western users of daylight fluorescent paints, pigments and printing inks. Within the new plant are facilities for manufacturing, laboratory, sales office and warehouse. *Fred Switzer*, formerly of the firm's headquarters in Ohio, is Vice President in charge of the operation in the Western Region.

THE FERNO MFG. CO. of Greenfield, Ohio, manufacturers of ambulance cots and mortuary equipment, has acquired through merger the Washington Mortuary Supply Company of Washington Court House, Ohio, manufacturer of similar emergency and mortuary equipment. Separate sales and manufacturing facilities will be maintained in the present plants.

Additional production and distribution facilities for tubular steel scaffolding and steel shoring to serve all construction trades throughout the Western United States are now offered by *SAFWAY STEEL PRODUCTS, INC.*, Milwaukee, Wis., according to an announcement by Richard N. Vandekieft, President. The expansion was made possible by acquisition of Beatty Scaffold of California, former Safway licensee. It includes manufacturing facilities and all other physical assets of Beatty Scaffold at San Francisco; Beatty Scaffold of Washington, a Washington corporation; and Beatty Aluminum Scaffold Co., a California corporation.

The move also brings to Safway the complete Beatty sales and distribution organization. All former Beatty personnel are continuing under the new Safway setup.

Safway's Western coverage now includes California, Oregon, Washington, Idaho, Nevada, Utah, Colorado, Wyoming, Arizona, New Mexico, Alaska and Hawaii. Branch warehouse stocks for sale or rental are maintained at San Francisco, Oakland, Los Angeles, San Diego, Seattle and Tacoma. The Western unit is under the management of *James C. Jay*, veteran Safway official. *George Iverson* is Assistant Manager.

A new enlarged plant location for the *WM. A. HOLMIN CORP.* of Rockford, Ill. is being announced by Wm. A. Holmin, president. The company manufactures amplified megaphones and other electronic communication equipment. The site at 1325 Seventh St., Rockford, represents an increase of more than 300% in total plant area. It is part of the company's new expansion program which also includes the introduction of several new electronic items.

Formation of a new Canadian company, *Wheelabrator Corp. of Canada, Ltd.*, is announced by James F. Connaughton, chairman of the board. The new corporation is the successor to the Canadian Division of *WHEELABRATOR CORP.*, Mishawaka, Ind., manufacturer of airless blast cleaning equipment, abrasives, and dust and fume collection systems. It also has an office in Montreal, Quebec. *Harold M. Miller* is president and *Robert A. Campbell* is vice president and general manager and is in charge of Canadian operations. *J. D. Lamb* is general sales manager.

GLOBE SECURITY SYSTEMS, INC., Philadelphia, has purchased the fixed assets, inventory, and business of the J. H. Sparks Co., Philadelphia, specialists in electronic communications and closed-circuit television. Globe provides industrial and commercial companies with protection against fire, theft, sabotage and safety and security hazards.

A new top-management team has been installed at *THE WILSON RUBBER CO.* of Canton, Ohio, makers of industrial, linemen's, household, and surgical rubber gloves, and a subsidiary of Becton, Dickinson & Co. Wilson's president, John W. Simmons, becomes executive vice president and chief of operations of Becton, Dickinson. John Yacos, Jr., former plant manager, has been named general manager at Wilson. T. L. Peterson becomes sales manager, responsible for all Wilson sales. He was formerly manager of sales for the Industrial Division. Richard L. Moody, former Wilson sales representative in the field, has moved to Canton as assistant sales manager, Industrial Division.

CHARLESTON RUBBER CO. of Charleston, S. C., announces appointment of Distributors Service Corporation, 7800 Compton Avenue, Los Angeles, as its service representative and warehousing distribution center for Charco industrial and rubber glove products in 13 western states. Gale M. Hallett, sales manager of Charleston, states that "This step insures better and faster service to the steadily increasing number of users of Charco products in the western states." The territory of Distributors Service Corp. includes California, Oregon, Washington, Montana, Nevada, New Mexico, Wyoming, Colorado, Utah, Arizona, Idaho, Alaska and Hawaii.

Northfield Machinery and Foundry Company, Northfield, Minn., leading manufacturers of precision woodworking machinery, will offer the *BRETT GUARD* visual safety guard as optional equipment with their tilting arbor type saw.

Appointment of *John E. Bakes* as manager of the Milwaukee district for the *"AUTOMATIC" SPRINKLER CORP. OF AMERICA*, Youngstown, Ohio, manufacturer of custom-engineered fire pro-

tection systems, has been announced by W. J. Meyer, regional manager. Bakes will direct the Milwaukee office in providing sales, engineering, installation and inspection service to the company's customers in that area. Formerly Des Moines sales representative, Bakes has been associated with the company for the past seven years, two of which were spent in the firm's engineering department.

The appointment of *H. John Asma* to be Regional Sales Manager, Technical Products for *FLEXIBLE TUBING CORP.* was announced by Frederick K. Daggett, president. Mr. Asma will make his headquarters at the company's plant in Hillside, Illinois. Prior to joining Flexible, Mr. Asma was sales manager of the International Coupling Division of the Gabriel Company in Cleveland, Ohio.

Edward L. Ladd, who became President of *BROOKS & PERKINS, INC.* in September has resigned for personal reasons. The Directors have continued *E. Howard Perkins*, Chairman of the Board and Chief Executive Officer of the company.

Seven new technical sales representatives have been appointed by *NORTH SHORE NAMEPLATE*, a division of Anodyne, Inc., manufacturers of pressure-sensitive nameplates, panels, wire and pipe markers, and safety signs, it was announced by Eugene T. Turney, Jr., chairman of the board.

The new representatives and their respective territories are: *L. G. White and Co.* (Maryland, Virginia, District of Columbia, Delaware, North and South Carolina, portions of West Virginia, Pennsylvania, New Jersey and Tennessee); *Neal Bear Corp.* (Ohio and portions of Western Pennsylvania, West Virginia and Maryland); *Southern Sales Co.* (Indiana, Kentucky, portions along the Indiana-Michigan boundry line); *The John G. Twist Co.* (Southern Wisconsin and Northern Illinois); *Engineering Services Co.* (Missouri, Kansas, Iowa, Nebraska and Southern Illinois); *E. L. Newman* (Northern California and Northern Nebraska); *Norvell Associates* (Texas and Oklahoma).

FIBRE-METAL PACIFIC, INC. announces the addition of a new member to their Sales Department. *Jack Weir*, formerly in Industrial Safety Engineering at North American Aviation, Inc., will work with Welding and Safety Distributors in the Southern California, Arizona and Southern Nevada areas. His experience includes work in plant safety program development, employee and supervisor training and personal protective equipment research and designation. He maintains current memberships in the Aero-Space Safety Council and Southern California Industrial Safety Society, and is a degree graduate in Business Administration.

Robert M. Edmiston, New York District Sales Manager for the *AMERICAN OPTICAL CO.*, has been named to the American Society of Safety Engineers' Committee on Cooperation with Engineering Societies. Edmiston is chairman of a similar committee for the Metropolitan Chapter of the Association in New York.

The appointment of *Warren L. Hotmer* as marketing assistant with responsibility for the sale of *DU PONT'S* "Freon" FE 1301 fire extinguishing agent has been announced by the company's "Freon" Products Division. In his new assignment in the division's fluoro solvents and chemicals sales group, Mr. Hotmer will be responsible for customer relations and for the development of technical and promotional programs directed toward the sale of the liquefied, compressed gas fire extinguishing compound.

GENERAL ELECTRIC will spend more than one million dollars in 1961 enlarging its Communication Products Department headquarters plant in Lynchburg, Va. The latest structural expansion will add over 100,000 square feet to the facilities which were built in 1957.

The Wire Rope Division of JONES & LAUGHLIN STEEL CORP. has opened its new Chicago Service Center at 3434 South 53rd Avenue, Chicago 50, Ill., it was announced by Peter P. Somerville, Division General Manager. The new Service Center is handling J&L's complete line of safety in lifting equipment, and is featuring additional services for customers. D. D. Hyland, Area Sales Manager—Midwest Territory, a J&L Wire Rope Division employee since 1953, is supervising the new Service Center.

Safety Appointments

Robert P. Gleason has been named safety engineer in the health physics and safety component of the General Electric-operated Knolls Atomic Power Laboratory (KAPL), according to E. B. Haines, manager of the KAPL relations and auxilliary operation. Gleason was chief safety engineer and industrial hygienist for the Sylvania Electric Corporation. Earlier he worked for the Fidelity & Casualty company of New York, as an industrial hygienist; for the General Electric Plastics division, Pittsfield, Mass., as a chemist, and for the Commonwealth of Massachusetts as an industrial hygiene chemist.

A native of Northampton, Mass., Gleason was graduated from the University of Massachusetts with a B.S. degree in chemistry in 1938 and an M.S. in 1942. He is a member of the American Chemical Society, the American Industrial Hygiene Association, the American Society of Safety Engineers and the American Public Health Association.

B. P. Burrage has been appointed training and safety coordinator of Continental-Emsco Company's Houston, Texas, plant. In his new capacity Burrage will be concerned with management-supervisory training, technical training, apprentice training, an individual development program, and other special training programs. He will also coordinate the plant safety program, plant medical program, plant security, and will be concerned with workmen's compensation matters. Burrage joined Continental-Emsco in 1945. He is a member of the American Society of Training Directors.

FOILLE®

FIRST AID SPRAY *FOR BURNS*

FOILLE — the antiseptic, analgesic dressing — is indicated for fast, effective relief of pain from burns, sunburn, cuts, wounds and abrasions. Areas can be sprayed thoroughly to provide prompt patient comfort and eliminate painful swabbing. FOILLE fights infection and promotes healing. In 3 oz. and 10 oz. spray.

CARBISULPHOIL CO., DALLAS, TEXAS

ORDER NOW from your supplier

(For details, use Key # C-18 on card on page 1)

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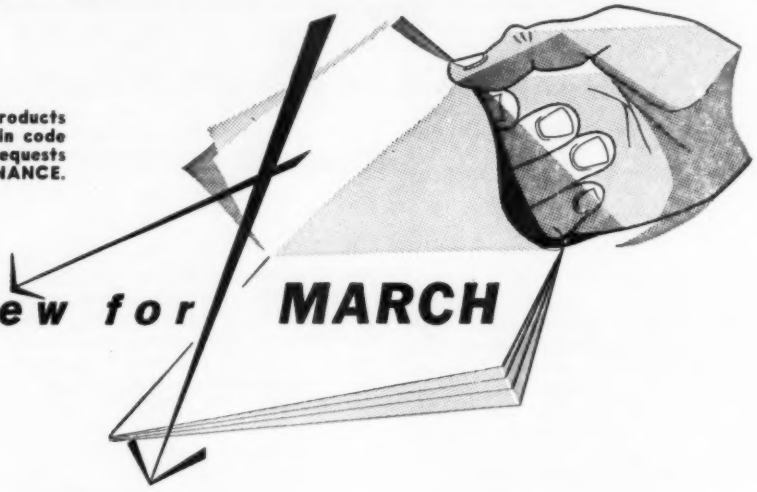


what's new for MARCH

FLEXIBLE MASK GOGGLES

(Use Key # 532 on Inquiry card on page 1)

IMPROVEMENTS have been made in the American Optical Co.'s line of flexible mask goggles, to make them even more safe and comfortable to use. The new goggles feature: (1) New snap buttons to hold lens securely in frame. Lens will not pop out, but can be removed quickly and easily for cleaning or replacement. (2) New recessed slots at sides of cups to fit over temples when worn with safety or personal prescription glasses. These keep the mask from bulging away from the face, assure snug fit. (3) Increased eyecup depth to give additional ventilation. (4) Wider edge of mask which molds to contour of face.

These improvements are featured in all models of the lightweight, well ventilated impact, chemical, welders' and chippers' goggles.

EASY SLIP-ON GLOVES

(Use Key # 533 on Inquiry card on page 1)

A NEW PROCESS that imparts a soft, velvety, easy on-easy off finish to lightweight natural rubber industrial and household gloves has recently been announced by Surety Rubber Co. Called Velvex, it is not a powder, flock or lubricant, but a "built in" surface treatment that will not wash, wear, or rub off. Guaranteed by the manufacturer to remain effective for the life of the gloves.

The new finish gloves are designed to offer complete liquid-proof hand protection without the loss of dexterity and sense of touch common to fabric or flock-lined types. Available in all types for men and women.

NEW HAND-LAMP APPROVED

(Use Key # 534 on Inquiry card on page 1)

APPROVAL HAS BEEN granted by the U. S. Bureau of Mines for a new permissible hand-lamp which combines a rechargeable 20 amp.-hour battery with the most powerful bulb ever sanctioned by the Bureau for this type of light. The battery features spill-proof design, has corrosion-resistant terminals and automatic filling control. Known as Type PBF-5R, the unit is made by Carpenter Mfg. Co. Approval is for safe use in gas-laden atmospheres above or below ground. The manufacturer states

that with normal use the battery should last four or more years with reasonable attention. The unit itself is made to give virtually unlimited service under the most rugged use. The only attention it requires is occasional bulb replacement. The lamp is lightweight, low cost, and designed to give an area coverage up to five times that of other types. Lamp shell and handle are spun from a single piece of aluminum into a solid, long-lasting unit. The battery case and cover are of cast aluminum. Reflector can be supplied as either a "hot-spot" or semi-flood. A companion model, the PBF-5, is available with a dry battery-pack. It is designed for applications where less frequent use of the lamp is necessary or where the rechargeable battery cannot be properly cared for.

NEW TYPE WIRE ROPE

(Use Key # 535 on Inquiry card on page 1)

A NEW TYPE of all-purpose wire rope has been developed by the Macwhyte Wire Rope Co. It will be marketed under the trade name of 7-Flex.

The basic difference between this new wire rope and previous kinds is that it is made of 7 strands instead of the conventional 6 or 8. This design is said to combine the best features of 6 strand and 8 strand wire rope. 7-Flex was developed to meet the needs of modern high-output machines for a wire rope having the best combination of wearing qualities (abrasion resistance) and flexibility (bending fatigue resistance).

NEW "SAFE SMOKER" UNITS

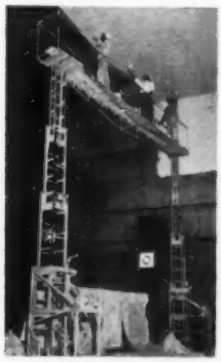
(Use Key # 536 on Inquiry card on page 1)

A NEW Model No. 4J-R has been added to the line of safe cigarette disposal units made by Standard Industrial Products Co. The new style is a permanently wall-mounted type and has a glass-fiber inner lining and a new warning sign. The model is available with either a bright polished or grey crinkle finish. The new Type "R" signs are made of heavy gauge steel, with black lettering on a white background. Two of the six available wordings are shown in the picture.

NEW GROUND DETECTOR

(Use Key # 537 on Inquiry card on page 1)

A LOW COST PORTABLE ground detector to indicate leakage and grounds on normally underground power systems, has been developed by Opad Electric Co. This compact instrument, designated as Model MP2, will detect any ground fault from zero resistance to as high as 50,000 Ohms and indicate in which phase the fault occurs. The detector will provide positive indication on any 2 or 3 phase system from 105 to 480 volts, without switching. A test circuit permits intentional grounding, through a resistor, of each successive phase. An "off" position is also provided. Connections are made by means of four 36-inch oil resistant rubber covered test leads with insulated clips. All leads are color-coded and marked for rapid identification and are securely anchored to the instrument with strain-relief fittings. Safety features include dead front construction, oil tight indication lamps and a high resistance case and panel.



NEW SCAFFOLD UNIT

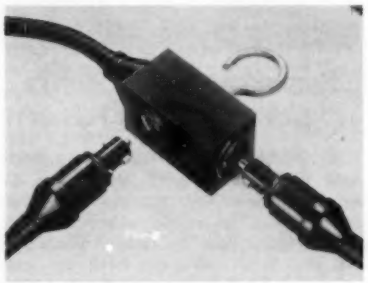
(Use Key # 538 on Inquiry card on page 1)

A NEW INNOVATION in scaffolds which consists of 2 Hi-Lift extension scaffolds and a Bridge to span them, has been announced by Atlas Industrial Corp. The use of this unit allows several workers complete freedom for working at any height up to 26 feet. The entire unit comes ready for work, no set-up required. It may be removed in less than 30 minutes. Patented features and sturdy steel construction are said to assure absolute safety.

EXPLOSION-PROOF PLUGS, RECEPTACLES

(Use Key # 539 on Inquiry card on page 1)

EXPLOSION-PROOF plugs and receptacles for safe, rapid connection and disconnection of permanent or portable electric lighting and power distribution systems in hazardous areas have been introduced by J. B. Nottingham & Co., Inc. Approved by the U. S. Navy for areas where Saran plastics work is being done, the new "Industriline" plugs and receptacles may be used with 2, 3, or 4-wire circuits rated as high as 240 volts, 15 amps or 120 volts, 30 amps. Plug and receptacle contacts of electrical-grade copper are solidly encased in neoprene bodies. The possibility of a spark igniting an explosive atmosphere is minimized by the design of these units. When inserted, a lip on the plug snugly

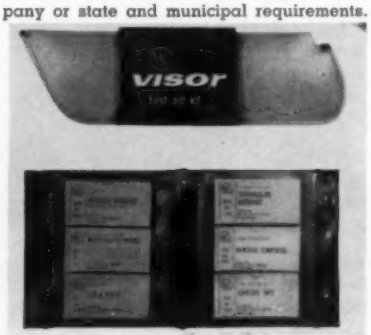


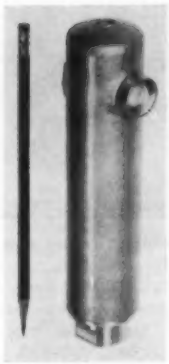
fits a collar on the receptacle to form a sealed chamber. Only after this chamber is closed can the plug be turned to engage plug and receptacle contacts and complete the circuit. The circuit is made or broken only while the contacts are enclosed in the sealed chamber.

MOTOR VEHICLE FIRST-AID KIT

(Use Key # 540 on Inquiry card on page 1)

DESIGNED to make first-aid materials immediately accessible to car and truck drivers in case of emergency is a new Visor First-Aid Kit, introduced by Medical Supply Co. The kit, a complete assortment of bandages, antiseptic, and burn compounds, slips over the windshield visor and is snugly held in position until needed for use. It can readily be unsnapped for instant use inside or outside of the vehicle. Mounting the kit on the visor assures that it is always at the driver's fingertips where he can get at it when he needs it. The kit can be imprinted with company or other special insignia. Special fills of first aid units are available to meet individual company or state and municipal requirements.

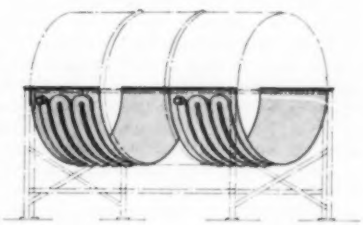




PHOTOELECTRIC CONTROL

(Use Key # 541 on Inquiry card on page 1)

A STREAMLINED photoelectric control package has been introduced by Photoswitch Div., Electronics Corp. of America. According to the manufacturer, this new control, Tubular Control Type 22LB5, represents the most efficient design found in the industry today. The transistorized, printed circuit is contained in a flashlight type cylinder 7½" long by 1⅜" in diameter with a conduit hub threaded to take ½" pipe, for simple direct mounting in any position. The unit contains a sensitive cadmium selenide cell, printed circuit transistorized amplifier, power transformer and output relay. Built for lifetime service, it requires little or no maintenance. With matching light source Type 40CE1, relay operation with light impulses as short as .015 second are said to be possible at light beam ranges up to 20 feet. Single pole-double throw relay contacts permit flexibility in industrial application.

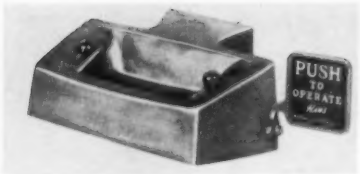


DRUM WARMER-COOLER

(Use Key # 542 on Inquiry card on page 1)

A NEW DRUM WARMER, also useful as a cooler, has been developed by Dean Products, Inc. It consists of a cradle formed by two semi-cylindrical sections of Panelcoil which are permanently mounted on a steel structure. The middle section is free, should the drum's fluid contents need to be withdrawn through the side; end bung is also accessible.

Hot water or steam at pressures to 125 psi (or refrigerant, if cooling is desired) is introduced into the single-embossed panels, circulating through the series of flow channels and out; heat is thus transferred to or absorbed from the drum. Drum may be removed or replaced quickly. Piping to Panelcoils may be disconnected easily, if equipment is to be moved.



EMERGENCY EYE FOUNTAIN

(Use Key # 543 on Inquiry card on page 1)

A NEW EMERGENCY eye-wash fountain has been developed by Haws Drinking Faucet Co. This smartly designed fountain with cast aluminum receptor comes ready for wall mounting. Designated the Haws Model 7300, it is functionally designed to provide invaluable first aid wherever contaminants such as acids, chemicals and volatile fuels are manufactured or used. Two chrome-plated brass fountain heads are angle-mounted to direct a stream of water into the eyes, flooding away foreign matter. The manufacturer points out that an emergency eye-wash can mean the difference between temporary irritation and permanent injury. A separate Haws flow-control valve for the fountain head assures proper water volume and pressure. The large push-type valve provides fumble-proof operating control. Once activated the fountain continues to flow until the valve is manually closed. Both hands are left free.

FLUORESCENT PAINT SPRAY

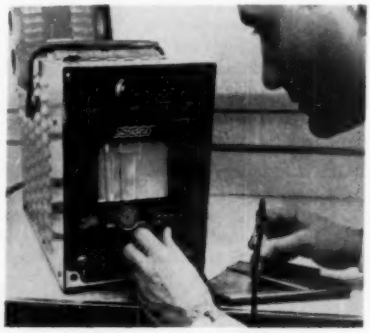
(Use Key # 544 on Inquiry card on page 1)

HIGH-VISIBILITY fluorescent spray enamel designed to cut down accidents or draw attention to displays and signs was introduced recently by the Martin-Senour Co. Because fluorescent pigment converts invisible ultra-violet light into visible light it appears far brighter than ordinary paints. The enamel comes in 16-ounce spray cans, requires no brushes or other painting equipment. It can be used on airplanes, boats, safety markers, trucks, road signs, house addresses, billboards, or ornamentation. The fluorescent colors available are brilliant red or orange.

ANTISEPTIC PAPER WASHCLOTH

(Use Key # 545 on Inquiry card on page 1)

HANDY, MOIST paper towels, packaged in individual foil envelopes and impregnated with an antiseptic deodorizing solution, have been placed on the market by Winthrop Laboratories. Called Zephiran Towelettes, they have hundreds of uses in first aid rooms and hospitals, washrooms, etc. Industrially, they may be used for first-aid antiseptic cleansing of minor cuts, abrasions and burns; as a sanitary washcloth in restrooms; for cleaning goggles, telephones, steering wheels, etc., to minimize risk of contagion, and wherever a general antiseptic is required. Towelettes contain 1:850 Zephiran chloride (brand of benzalkonium, as chloride, refined), perfume, chlorothymol and 20 percent alcohol. Supplied in boxes of 20 and 100. The towelettes are pre-moistened; no water is necessary. The antiseptic destroys surface bacteria and the detergent action removes dirt, grease and grime.



ULTRASONIC MICROMETER

(Use Key # 546 on Inquiry card on page 1)

A NEWLY DEVELOPED caliper attachment for the Sonoray ultrasonic flaw detector measures the thickness of metals and plastics, from one side, to within —0.010 inch. Both the caliper attachment and the basic instrument itself are marketed by Branson Instruments, Inc. The caliper consists essentially of a fixed, scribed, vertical line, and a second line on a slider, movable across the face of a cathode-ray tube. A synchronized dial indicator measures the amount of motion, permitting the operator to determine thickness directly, without calculations or interpolation. The new accessory permits accurate location of hidden discontinuities, voids, slag inclusions, etc. Knowing how deeply these imperfections penetrate into sound metal often makes the difference between scrapping the entire component, or salvaging it by machining off the damaged sections. Shop personnel who are familiar with ultrasonic testing can use the caliper after a few minutes of training. The caliper attachment is available separately, for mounting on existing Sonoray detectors, or it may be ordered installed on the instrument. It weighs approximately one pound.

COMBINED LIGHTING FIXTURE AND AIR DIFFUSER

(Use Key # 547 on Inquiry card on page 1)

COMBINATION air diffuser and recessed lighting fixture units are now available from Sylvania Electric Products, Inc., Lighting Fixtures Div. Supplied in one and two-foot widths, in several shielding models to accomodate all popular acoustical ceiling types. These troffers are designed to meet UL specifications as air supply and/or return units. They use 40 watt rapid-start fluorescent lamps. 1′ by 4′ and 1′ by 8′ housings have two or three-lamp cross section; 2′ by 4′ housings available for two, three or four lamps. All units come with snap-up hangers for fast, easy installation.

NEW FOAM EXTINGUISHER FEATURES SAFETY VALVE

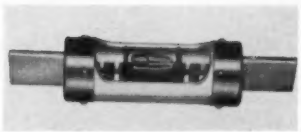
(Use Key # 548 on Inquiry card on page 1)

AN ENGINEERED safety valve has been made a standard, integral feature of The Fyr-Fyter Co.'s new 2½ gal. portable foam fire extinguisher, Model 18-4CG. This affords additional protection for the extinguisher operator. It functions to bleed off any excess internal pressure that might be generated (perhaps due to a discharge line blockage) when the extinguisher is inverted. The valve, required by the Coast Guard and frequently specified by insurance firms for special installations, previously was supplied only on individual orders as an extra-cost optional accessory. All foam portable fire extinguishers manufactured by The Fry-Fyter Co. are now being equipped with this important safety feature at no extra cost. The new model is fabricated of lightweight, durable stainless steel. Underwriters', Factory Mutual and Coast Guard approved, it will when inverted produce a 20 gallon foam blanket to smother and extinguish incipient fires in paint, varnish, tar, grease, other flammable liquids and ordinary combustibles (wood, paper, cloth, etc.). Also available in drawn brass.

EPOXY FLOOR RESURFACER

(Use Key # 549 on Inquiry card on page 1)

A COLD-PROCESS epoxy type resurfacing and patching material for concrete, wood, and metal floors has been announced by Masury-Young Co. The manufacturer calls it Tripoxy, reports that the new product is 4 times stronger than heavy duty concrete and 2–6 times more abrasion resistant. In addition, it is said to offer permanent adhesion, high resistance to chemicals, permanent color, rapid curing and easy application. Composed of an epoxy resin binder, pigmented hardener, and special sand aggregate, Tripoxy can be applied by regular personnel or maintenance men. No special tools or equipment are required. A covering only ¼" thick is said to eliminate the customary level changes of on-floor installations. Surface may be walked on in 4–8 hours, and is ready for medium-heavy traffic in 10–15 hours, heaviest traffic in 3 days. It may also be troweled smooth or in degrees of roughness as desired. Manufacturer's installation tests included a paper mill, sugar refinery, aircraft plant and automobile assembly plant where heavy steel wheel traffic, impact, and chemical spillage had broken down and eroded concrete.



DUAL ELEMENT FUSE

(Use Key # 550 on Inquiry card on page 1)

A COMPLETE LINE of dual element cartridge fuses in 250v and 600v range is available from Monarch Electric Div., El-Tronics, Inc. The snap-open jaws of the heat sinks are activated when heat from any source approaches 300° F. The thermal cut-out element is said to provide exceptional time-delay performance, useful in preventing needless blows from harmless overloads such as motor starting surges. The fuse link elements are ruggedly constructed, but blow extremely fast on short circuit. The combination of these elements and other improvements are designed to assure completely reliable fuse protection. The product, called Fuseking, has been approved by Underwriters' Laboratories. Photo shows cutaway view.

SLING CHAIN SAFETY HOOK

(Use Key # 551 on Inquiry card on page 1)

A SAFETY HOOK and latch assembly has been added by American Chain Div., American Chain & Cable Co. to their line of Accoloy Kuplex sling chain assemblies. These sling chains consist of master link, chain portion, patented "Kuplers," and any desired type of hook—sling, grad or foundry—including the new safety hook with safety latch assembly. Present users of sling hooks can convert them to safety hooks just by replacing the conventional load pin with a special safety latch assembly, available as a separate component. Kuplex sling chains are now furnished with an improved load pin that has a retaining disk.

LOW-COST DUST RESPIRATOR

(Use Key # 552 on Inquiry card on page 1)

A NEW, ALL-PLASTIC dust respirator has been brought out by Glendale Optical Co. A main economy feature is the permanent, washable foam filter element treated with DuPont Thiuram. Other features are: light weight; 3-piece all-plastic design; comfortable one-size fit for all faces. The outer frame is light gray, with a pliable polyethylene cushion. The inner frame locks the filter easily, securely into place to assure a perfect seal. Designed for protection against nuisance dusts and for paint spraying, the respirator is reported non-toxic, non-allergenic.

LIGHTER WHITE GLOVES

(Use Key # 553 on Inquiry card on page 1)

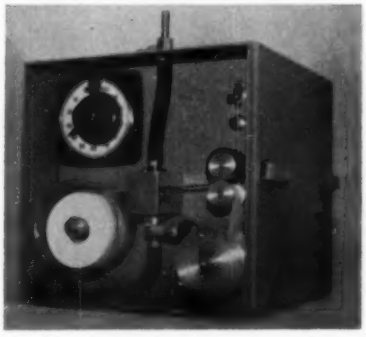
For SPECIALIZED industrial fields where both sanitary handling of products and worker hand protection is required, The Pioneer Rubber Co. has introduced Stanzoil N-37 Whitecap gloves. These are lightweight, flexible gloves made of milled Du Pont neoprene—white outside with a red satinized lining. They are designed with an embossed, non-slip grip to insure safe handling of even the most slippery products. The curved, contour design of the fingers and hand areas is said to eliminate fatigue and provide a comfortable fit, as well as long wear.

Unlike natural rubber, milled neoprene gloves are resistant to chemicals, oils, acids, caustics, solvents, greases, oxidation and ozone cracking. They possess a greater tensile strength, to withstand abrasion and other hard usage. The new gloves are available in small, medium, and large sizes. Their 10½-inch length amply protects the wrists and lower arms. They are recommended by the manufacturer for food processing, freezing, canning and packing, as well as laboratory use, chemical handling, and light industrial product assembly, inspection and maintenance.

AUTOMATIC AIR SAMPLER RECORDS ON PAPER TAPE

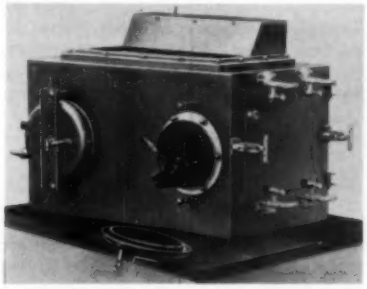
(Use Key # 554 on Inquiry card on page 1)

A MULTI-PURPOSE air sampling instrument, developed by the Gelman Instrument Co., automatically collects dust samples on a paper tape. Periodic advancement of the tape provides a permanent record of air pollution for subsequent analysis. Once in operation the Gelman Paper Tape Sampler regularly samples, unattended for days or weeks, on one tape. Anyone can remove part of this tape for on the spot study without interrupting the sampling program. In addition to dusts and aerosols, the new design makes gas and radioactive particle sampling possible. Provisions for internal evaluating attachments have been incorporated. Accessories include a paper densitometer to measure amounts of dusts or aerosols in air, an optical evaluator to determine gas levels, and a scintillation or Geiger counter for monitoring radioactive particle content in air. Radioactivity monitoring attachments can be connected to recorders or alarm circuits to automatically warn of dangerous levels of radiation.



Toxic gases are detected by using special sensitized tapes. Tapes can be prepared for detection of such gases as hydrogen sulphide, hydrogen cyanide, phosgene, acid gases, mercury vapor, arsine, phosphine, carbon monoxide, chlorinated hydrocarbons, sulphur dioxide, and chlorine. Sensitivity for gas measurement is reported to be several parts per billion.

Potential users of the Paper Tape Air Sampler include electronics and sensitive-instrument manufacturers, chemical and pharmaceutical concerns, industrial and radioactive health organizations, laboratory equipment manufacturers, researchers in the life sciences, and many allied industries. The instrument is small (9" x 9" x 10"), light (20 lbs.) and designed for year-around operation indoors or out without modification. Sampling intervals may be chosen from once a minute to once every two hours with the standard timer. Operation is automatic and continuous. The instrument needs only occasional tape changes and lubrication; maintenance is minimal.



LAB ISOLATION CABINET INCINERATES GERMS

(Use Key # 555 on Inquiry card on page 1)

NOW AVAILABLE from Fisher Scientific is a double-incineration accessory for their Isolator/Lab that keeps its interior completely germ-free after initial sterilization. The Isolator/Lab is a moderately priced, completely enclosed cabinet that protects experimental cultures and clinical specimens from contamination, and simultaneously guards researchers against infection. With the new accessory, any organisms in the air entering the sealed unit are removed by a high-efficiency filter system or killed by incineration. Organisms in the air exhausted from the cabinet are destroyed in the same way.

The inlet and exhaust incinerators are double coils of stainless-steel tubing, heated by electrical resistance. Entering air first passes through a dry impingement filter reported to be 99.95% effective in stopping particles in the 0.3 to 0.5 micron range. It is then heated to 750 degrees F. for 3 seconds, destroying any organisms that remain. Exhaust air, carrying any infectious organisms swept up in the work chamber, is first incinerated to kill the pathogenic agents, then filtered to remove their remains. The air can then escape into the room with no hazard to personnel. A ¼ hp pump maintains a continuous one cfm. flow of filtered incinerated air into and out of the sealed work chamber.

BETTER VISION BOTTLE

(Use Key # 556 on Inquiry card on page 1)

A TALL PINT bottle, made of linear polyethylene, has replaced glass containers as the standard packaging of K-Lens-M lens cleaner and anti-fogging liquid. Introduced by the Wilkins Co. as a convenience for industrial users, the plastic bottle is designed to fit the company's Skyscraper goggle cleaning stations. It eliminates the danger of breakage, and is said to reduce shipping and handling costs considerably. Available from safety equipment distributors.

NEW AC-DC WELDER

(Use Key # 557 on Inquiry card on page 1)

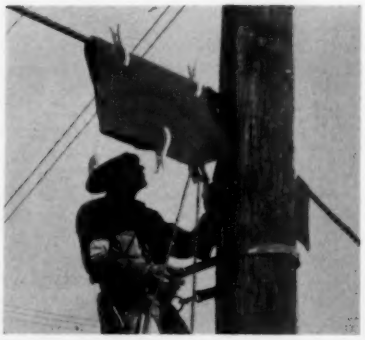
A NEW GASOLINE engine-driven welder for construction, farm, maintenance, and repair jobs in the field has been announced by National Cylinder Gas Div., Chemetron Corp. The Model SGAD-225-L produces 300 amperes at 30 volts AC, or 225 amperes at 30 volts DC welding current at 100 per cent duty cycle. The unit is compact for easy movement on a trailer or hand running gear.

The welder functions efficiently for metallic inert gas welding, and with a high-frequency conversion unit it is said to be an excellent AC welder for the tungsten inert gas welding process. The unit produces 115/230-volt single-phase 60 cycle AC power for operating lighting systems and for emergency use, and can produce 115 volts auxiliary DC power while welding. 53 inches long, 25 inches wide, and 36 inches high; it is powered by a 24.4 horsepower engine.

ANTI-SLIP EPOXY FINISH

(Use Key # 558 on Inquiry card on page 1)

A BRUSH-ON or roll-on anti-slip finish, now being produced by Custom Abrasive Products Co., based on Thiokol polysulfide-modified epoxy on which fine or coarse abrasive grains are sprinkled. Called Ruffin, it can be used on floors, decks, ramps, docks, elevated walk-ways and stair treads. It adheres strongly to wood, metal, cement and floor tile. Provides a long-lasting, weather-resistant, anti-slip surface for the protection of employees, plant visitors, and the public. It is recommended by the manufacturer for surfaces that are exposed to the weather, or that are oily or slick. For expanded metal gratings, ladders and similar applications, the abrasive is mixed with the vehicle to prevent waste of grains by sprinkling. Adhesive is laid down approximately 10 mil thick. Abrasive is sprinkled on at a rate of 25 lbs. per 100 sq. ft. Ruffin comes in units of about 150 and 1600 sq. ft. coverage. Larger amounts furnished on special order.



LINEMAN'S SAFETY BLANKET

(Use Key # 559 on Inquiry card on page 1)

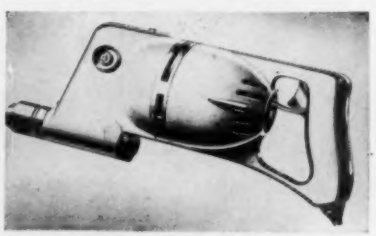
A PRECISION molded natural-rubber insulating blanket for protection of utility linemen and others working with high voltage is now being offered by Charleston Rubber Co. The new Charco-Acushnet protective blanket carries the catalog designation CB-36. It is 36" by 36" and has mold-formed eyelets. It is said to exceed the specification requirements of ASTM D-1048 and has built-in qualities to make it resist ageing and rough handling. Severe tests have demonstrated this blanket's exceptionally high dielectric strength, superior uniform quality and dependable protection, according to the manufacturer. It handles easily on lines and is easily draped.

NEW ELECTRIC HAMMER

(Use Key # 560 on Inquiry card on page 1)

AN ELECTRIC hammer that operates on an entirely new principle is being marketed by Modern Mfg. Co. This tool is intended for drilling in concrete, cutting automobile panels, driving speed nuts, removing paint, vibrating vats, and thousands of other applications. The hammer weighs only 8½ lbs. Although it packs a terrific wallop, its design is said to eliminate direct vibration or recoil.

Forty different chisels are available to fit the quick-release chuck.

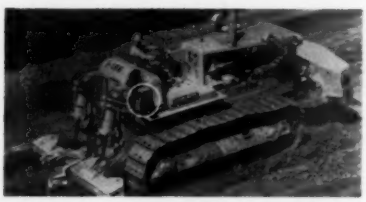


X-RAY TESTING EQUIPMENT

(Use Key # 561 on Inquiry card on page 1)

TWO NEW PORTABLE x-ray units for non-destructive testing of parts ranging from thin-walled castings to heavy weldments, are being marketed by Balteau Electric Corp. The Baltograph 300, weighing 136 lbs., is offered in two models; the D, for single beam use; and the P for 360° Panoram-X radiography. Each has a penetration capability of up to 4" of steel.

The Baltospot 150, 55 lbs., also available in two models, can penetrate up to 1⅞" of steel. Model 150-P incorporates a 360° x-ray tube for circumferential radiography. Model 150-D has a wide angle 60° tube which allows up to 50% greater linear exposure at any given distance. The port areas on both models are end positioned for easy access to internal sections too small to accept the entire head. Both versions in each of the new units are convertible, one to the other, at nominal cost.



HEAVY-DUTY BACK-UP HORN

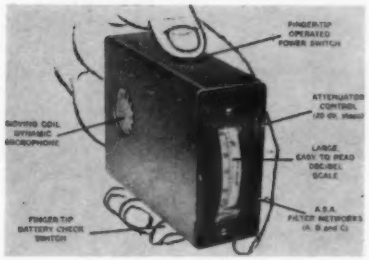
(Use Key # 562 on Inquiry card on page 1)

A MECHANICAL construction equipment reverse alarm which meets recently released specifications of the U. S. Army Corps of Engineers has been announced by the E. D. Bullard Co. Industries utilizing heavy tractor equipment have long felt a need for a dependable back-up signal designed specifically for construction work, and the Bullard Bull/Horn was created to meet this need. It can be used on graders, tractors, scrapers, wheel loaders, track loaders, batch trucks, haulers and carry-alls. The alarm is mechanical, not electrical. The manufacturer gives two advantages for this: a mechanical signal works at any time, whether or not the motor is running, and no maintenance is necessary on a mechanical alarm. Once installed, it will run indefinitely. The Bull Horn is easy to operate and relatively simple to install. Its distinctive warning signal is directional. All moving parts are precision-made and lubricated for life, at the time of manufacture.

NEW METER MEASURES NOISE LEVEL, VIBRATION

(Use Key # 563 on Inquiry card on page 1)

AN ACCURATE, inexpensive sound survey meter which is miniature in size, but rugged and stable in performance due to its fully transistorized circuitry, has been announced by the Acoustics and Instruments Div. of the Korfund Co. The Korfund Sound Survey Meter, Type B, was designed especially for measuring noise levels from 40 to 125 db in factories, offices, public buildings, and in field surveys. It assists in locating the source of potentially



harmful sound levels and in the design of quieter electromechanical equipment. A special feature is its ability to measure relative magnitudes of vibration or structure-borne noise by means of a mating transducer which plugs into the meter. This permits singling out any individual source of disturbance in a location where ambient noise would not permit accurate air-borne sound measurement. It is also useful in preventive maintenance programs to check on progressive wear of machinery parts by comparing readings when the machine is new with readings taken periodically.

Designed for one-hand operation, the Type B meter weighs only one pound (with battery) and features finger-tip controls. It is powered by a mercury battery good for at least 10,000 measurements. Dimensions are 5" x 3¼" x 1½" overall. The leather carrying case has cut-outs for the controls which permit operation of the meter inside the case.

NEW EYESHIELD DESIGN

(Use Key # 564 on Inquiry card on page 1)

NEW, LOW-COST eyeshield for chipping or welding has been developed by Dockson Corp. Known as the Chiporweld Eyeshield, this lightweight, sturdy eye protector has a one-piece, pliable molded-plastic frame which rests low on the face to provide the wearer with a broader field of vision. Edges have flange-cushions, and the nose cradle is cupped to distribute pressure. The adjustable elastic headband is designed for comfort and may be quickly replaced. The eyeshield may be used with or without prescription glasses. Its new baffle design lets air circulate freely through ample ports, but prevents foreign particles and light from entering. Plastic spacer frame between lenses prevents fogging. Clear lenses for chipping and green lenses for welding are interchangeable.

ALARM CONTROL CONSOLE

(Use Key # 565 on Inquiry card on page 1)

MONITORING-CONTROL console for alarms is one of a new line introduced by Kiddie Ultrasonic & Detection Alarms, Inc. These proprietary alarm control centers are factory engineered to customer specifications. They provide compact central stations to receive and supervise a wide diversity of alarms. They monitor fire detection, watch clock stations and burglar-intrusion systems, and are equally adaptable to automated and non-automated

operations involving water flow, overheat or various production danger alarms. Named Cons-O-Larm, these units have a tape which automatically records the time and codes the location and type of alarm. In addition, they can be supplied with closed circuit television, public address, or telephone systems of any kind.

ROCKET FUEL GAS MASK

(Use Key # 566 on Inquiry card on page 1)

A ROCKET propellant gas mask and canister is now on the market. Manufactured by the Willson Products Div. of Ray-O-Vac Co., this equipment provides protection against dangerous elements in hypergolic liquid rocket propellants: red fuming nitric acid (RFNA); unsymmetrical dimethyl hydrazine (UDMH); hydrazine; hydrogen peroxide; kerosene; aniline; and splashes from nitrogen tetroxide and fluorine liquids. More economical than self-contained breathing apparatus, masks allow complete protection for more people over a wider area. New Willson rocket propellant canister meets specifications of the Protective Development Division, Army Chemical Research and Development Laboratories.

Equipment available includes gas mask with full facepiece; gas mask with half

facepiece; basic rocket propellant canister with standard threaded nozzle; and special military type canister with added filter protection against radioactive and bacteriological dusts. Canisters have built-in inlet valves, air-tight seals, threaded nozzle, side mounted "D" rings for harness. They can be carried on front or back of wearer, and have a four-year shelf life. Masks are made of black rubber. Full-face mask directs inhaled air over safety lenses to prevent fogging. Flexible corrugated breathing tubes, threaded connectors, metal guards and exhalation valves protect against splashing liquids.

ALKALINE RUST REMOVER

(Use Key # 567 on Inquiry card on page 1)

DEVELOPMENT OF A non-acid, non-flammable rust remover that descales rust, carbon, scale, and paint from ferrous metals without the dangers of hydrogen embrittlement or dimensional tolerance loss has been announced by Turco Products, Inc. The product removes heavy rust and stubborn paint deposits such as red oxide primer, baked lacquer, acid-proof paint, and asphalt finishes, by means of a simple one-tank operation followed by a pressure rinse. Alkaline Rust Remover contains no cyanide compounds and emits no corrosive fumes.

Used in a soak tank or electrolytically, it requires only a mild steel hot tank of welded construction with stainless steel heating coils. It minimizes the tendencies of the darkening of steel during processing and re-rusting of the metal after processing. Metals withdrawn from the process require no after-neutralization.

HIGH ACCESS HAND TRUCK

(Use Key # 568 on Inquiry card on page 1)

A SAFETY TRUCK, for quick, easy access to high bins and shelves, is being manufactured by Nutting Truck and Caster Co. Operator's weight depresses the spring loaded ladder to the floor, providing positive braking action on its rubber tipped feet. The truck cannot move until operator steps off ladder allowing return to up position. Features include safety treaded steps for firm footing; top cross bar and extended handles for forward and side support when hands are full; heavy duty steel angle frame and thick gauge smooth shelves welded into a solid unit. Two and three shelf models available with or without galvanized trays. Demountable rubber tired wheels.

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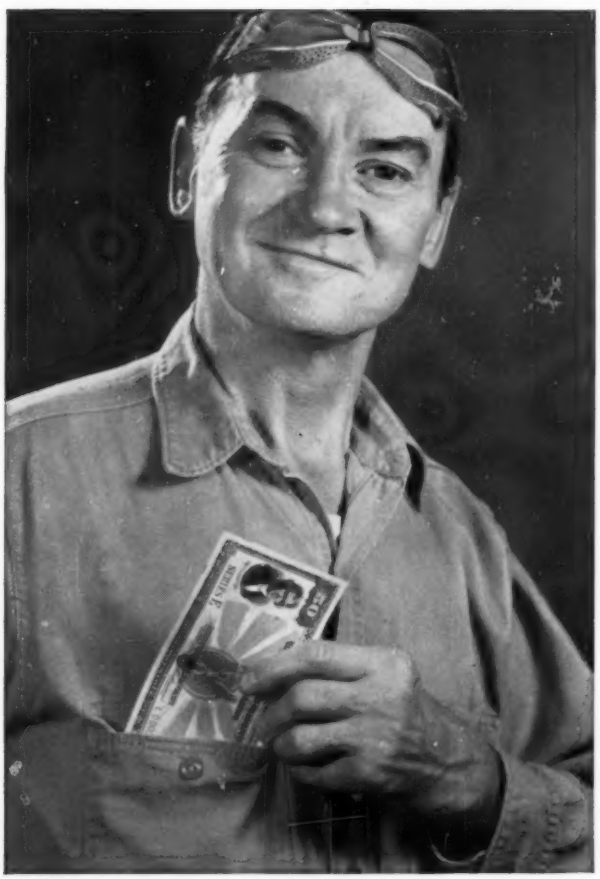

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